Chapter 2

True-False   Budget Constraint

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 90   Discrimination Index: 10
Correct Answer: False

2.1   If there are two goods with positive prices and the price of one good is reduced, while income and other prices remain constant, then the size of the budget set is reduced.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 24
Correct Answer: False

2.2   If good 1 is measured on the horizontal axis and good 2 is measured on the vertical axis, and if the price of good 1 is p_1 and the price of good 2 is p_2, then the slope of the budget line is $-p_2/p_1$.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 91   Discrimination Index: 13
Correct Answer: False

2.3   If all prices are doubled and money income is left the same, the budget set does not change because relative prices don't change.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 21
Correct Answer: True

2.4   If there are two goods, and if one good has a negative price and the other has a positive price, then the slope of the budget line will be positive.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 94   Discrimination Index: 12
Correct Answer: False

2.5   If all prices double and income triples, then the budget line will become steeper.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 95

Discrimination Index: 13

Correct Answer: False

2.6 If Good 1 is on the horizontal axis and Good 2 is on the vertical axis, then an increase in the price of Good 1 will not change the horizontal intercept of the budget line.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 98

Discrimination Index: 1

Correct Answer: False

2.7 If there are two goods and the prices of both goods rise, then the budget line must become steeper.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 97

Discrimination Index: 0

Correct Answer: True

2.8 There are two goods. You know how much of good 1 a consumer can afford if she spends all of her income on good 1. If you know the ratio of the prices of the two goods, then you could draw the consumer's budget line without any more information.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 91

Discrimination Index: 0

Correct Answer: True

2.9 A consumer prefers more to less of every good. Her income rises, and the price of one of the goods falls while other prices stay constant. These changes must have made her better off.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: True

2.10 There are 3 goods. The price of good 1 is -1, the price of good 2 is $+1$, and the price of good 3 is $+2$. It is physically possible for a consumer to consume any commodity bundle with non-negative amounts of each good. A consumer who has income of 10 could afford to consume some commodity bundles that include 5 units of good 1 and 6 units of good 2.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 80

Discrimination Index: 49

Correct Answer: False

2.11 A decrease in income pivots the budget line around the bundle initially consumed.

Topic: Budget Constraint
% Correct Responses: 97
Correct Answer: A

Difficulty: 1
Discrimination Index: 6

2.1

If she spends all of her income on lemons and tangerines, Isabella can just afford 30 lemons and 8 tangerines per day. She could also use her entire budget to buy 6 lemons and 14 tangerines per day. The price of lemons is 6 guineas each. How much is Isabella's income per day?

(a) 372 guineas

(b) 377 guineas

(c) 371 guineas

(d) 363 guineas

(e) None of the above.

Topic: Budget Constraint
% Correct Responses: 97
Correct Answer: A

Difficulty: 1
Discrimination Index: 6

2.2

If she spends all of her income on uglifruit and breadfruits, Maria can just afford 11 uglifruit and 4 breadfruits per day. She could also use her entire budget to buy 3 uglifruit and 8 breadfruits per day. The price of uglifruit is 6 pesos each. How much is Maria's income per day?

(a) 115 pesos

(b) 119 pesos

(c) 114 pesos

(d) 105 pesos

(e) None of the above.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

2.3   Matt lives on popcorn and seafood salads. The price of popcorn is 1 dollar per bag and the price of seafood salads is 2 dollars each. Matt allows himself to spend no more than 13 dollars a day on food. He also restricts his consumption to 5,500 calories per day. There are 1,000 calories in a bag of popcorn and 500 calories in a seafood salad. If he spends his entire money budget each day and consumes no more calories than his calorie limit:

(a) he can consume up to 3 bags of popcorn per day, but no more.

(b) he can consume up to 1 bags of popcorn per day, butno more.

(c) he can consume up to 5 seafood salads per day, but no more.

(d) he can consume up to 4 bags of popcorn per day, but no more.

(e) None of the above.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

2.4   Quincy lives on ding dongs and seafood salads. The price of ding dongs is 1 dollar per bag and the price of seafood salads is 4 dollars each. Quincy allows himself to spend no more than 23 dollars a day on food. He also restricts his consumption to 3,300 calories per day. There are 600 calories in a bag of ding dongs and 300 calories in a seafood salad. If he spends his entire money budget each day and consumes no more calories than his calorie limit:

(a) he can consume up to 3 bags of ding dongs per day, but no more.

(b) he can consume up to 1 bags of ding dongs per day, butno more.

(c) he can consume up to 5 seafood salads per day, but no more.

(d) he can consume up to 4 bags of ding dongs per day, but no more.

(e) None of the above.

Topic: Budget Constraint
Difficulty: 1
% Correct Responses: 88
Discrimination Index: 20
Correct Answer: A

2.5   Teresa spends her entire budget and consumes 6 units of x and 20 units of y. The price of x is twice the price of y. Her income doubles and the price of y doubles, but the price of x stays the same. If she continues to buy 20 units of y, what is the largest number of units of x that she can afford?

(a) 12

(b) 6

(c) 14

(d) 16

(e) There is not enough information to say.

Topic: Budget Constraint
Difficulty: 1
% Correct Responses: 88
Discrimination Index: 20
Correct Answer: A

2.6   Linda spends her entire budget and consumes 15 units of x and 19 units of y. The price of x is twice the price of y. Her income doubles and the price of y doubles, but the price of x stays the same. If she continues to buy 19 units of y, what is the largest number of units of x that she can afford?

(a) 30

(b) 15

(c) 32

(d) 34

(e) There is not enough information to say.

Topic: Budget Constraint
Difficulty: 1
% Correct Responses: 50
Discrimination Index: 50
Correct Answer: C

2.7   In year 1, the price of good x was 1, the price of good y was 1, and income was 30. In year 2, the price of x was 6, the price of good y was 5, and income was 30. On a graph with x on the horizontal axis and y on the vertical, the new budget line is:

(a) flatter than the old one and lies below it.

(b) flatter than the old one and lies above it.

(c) steeper than the old one and lies below it.

(d) steeper than the old one and lies above it.

(e) none of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 50   Discrimination Index: 50
Correct Answer: C

2.8   In year 1, the price of good x was 4, the price of good y was 2, and income was 60. In year 2, the price of x was 17, the price of good y was 8, and income was 60. On a graph with x on the horizontal axis and y on the vertical, the new budget line is:

(a) flatter than the old one and lies below it.

(b) flatter than the old one and lies above it.

(c) steeper than the old one and lies below it.

(d) steeper than the old one and lies above it.

(e) none of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 35   Discrimination Index: 8
Correct Answer: D

2.9

If she spends her entire budget, Vanessa can afford 47 apricots and 10 cherries. She can also just afford 20 apricots and 19 cherries. The price of apricots is 18 cents. What is the price of cherries in cents?

(a) 64

(b) 3

(c) 21

(d) 54

(e) None of the above.

Topic: Budget Constraint
% Correct Responses: 35
Correct Answer: D

Difficulty: 1
Discrimination Index: 8

2.10

If she spends her entire budget, Heidi can afford 39 peaches and 12 pears. She can also just afford 24 peaches and 17 pears. The price of peaches is 9 cents. What is the price of pears in cents?

(a) 37

(b) 3

(c) 12

(d) 27

(e) None of the above.

Topic: Budget Constraint
% Correct Responses: 100
Correct Answer: B

Difficulty: 1
Discrimination Index: 0

2.11   Heidi thrives on two goods: bananas and apples. The cost of bananas is 30 marks each and the cost of apples is 15 marks each. If her income is 210 marks, how many bananas can she buy if she spends all of her income on bananas?

(a) 5

(b) 7

(c) 14

(d) 10

(e) None of the above

Topic: Budget Constraint
% Correct Responses: 100
Correct Answer: B

Difficulty: 1
Discrimination Index: 0

2.12   Teresa thrives on two goods: mangos and melons. The cost of mangos is 30 yen each and the cost of melons is 15 yen each. If her income is 180 yen, how many mangos can she buy if she spends all of her income on mangos?

(a) 4

(b) 6

(c) 12

(d) 9

(e) None of the above

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 34
Correct Answer: B

2.13   Yoram spends his entire income on 11 sacks of acorns and 5 crates of butternuts. The price of acorns is 4 dollars per sack and his income is 94 dollars. He can just afford a commodity bundle with A sacks of acorns and B crates of butternuts which satisfies the budget equation:

(a) $4A + 12B = 94$.

(b) $8A + 20B = 188$.

(c) $6A + 10B = 94$.

(d) $4A + 14B = 96$.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 34
Correct Answer: B

2.14   Eduardo spends his entire income on 12 sacks of acorns and 2 crates of butternuts. The price of acorns is 2 dollars per sack and his income is 34 dollars. He can just afford a commodity bundle with A sacks of acorns and B crates of butternuts which satisfies the budget equation:

(a) $2A + 7B = 34$.

(b) $4A + 10B = 68$.

(c) $4A + 5B = 34$.

(d) $2A + 9B = 36$.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 99   Discrimination Index: 5
Correct Answer: C

2.15   Harry thrives on two goods, paperback novels and bananas. The cost of paperback novels is 4 dollars each and the cost of bananas is 3 dollars per bunch.If Harry spent all of his income on bananas, he could afford 12 bunches of bananas per week. How many paperback novels could he buy if he spent all of his income on paperback novels?

(a) 36

(b) 48

(c) 9

(d) 16

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 92   Discrimination Index: 25
Correct Answer: E

2.16   Suppose that the prices of good x and good y both double, and income triples. On a graph where the budget line is drawn with x on the horizontal axis and y on the vertical axis:

(a) the budget line becomes steeper and shifts inward.

(b) the budget line becomes flatter and shifts outward.

(c) the budget line becomes flatter and shifts inward.

(d) the new budget line is parallel to the old budget line and lies below it.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 96   Discrimination Index: 18
Correct Answer: D

2.17   Suppose that the price of good x triples and the price of good y doubles while income remains constant. On a graph where the budget line is drawn with x on the horizontal axis and y on the vertical axis, the new budget line:

(a) is flatter than the old one and lies below it.

(b) is flatter than the old one and lies above it.

(c) crosses the old budget line.

(d) is steeper than the old one and lies below it.

(e) is steeper than the old one and lies above it.

Topic: Budget Constraint   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

2.18   While traveling abroad, Tammy spent all of the money in her purse to buy 5 plates of spaghetti and 6 oysters. Spaghetti costs 8 units of the local currency per plate and she had 82 units of currency in her purse. If s denotes the number of plates of spaghetti and o denotes the number of oysters purchased, the set of commodity bundles that she could just afford with the money in her purse is described by the equation:

(a) $82 + 6o = 82$.

(b) $6s + 8o = 82$.

(c) $8s + 7o = 82$.

(d) $5s + 6o = 82$.

(e) There is not enough information to determine the answer.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

2.19   Billy Bob wants to gain some weight so that he can play football. Billy eats only milkshakes and spinach. Milkshakes cost him \$1 each and spinach costs \$2 per serving. A milkshake has 850 calories and a serving of spinach has 200 calories. Billy Bob never spends more than \$20 a day on food and he always consumes at least 8000 calories per day. Which of the following is necessarily true?

(a) Billy Bob consumes at least 9 milkshakes a day.

(b) Billy Bob never consumes more than 6 servings of spinach a day.

(c) Billy Bob never consumes positive amounts of both goods.

(d) Billy Bob consumes only milkshakes.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 21
Correct Answer: D

2.20   Lars consumes only potatoes and herring. When the price of potatoes was 9 crowns per sack and the price of herring was 5 crowns per crock, he spent his entire income to buy 5 sacks of potatoes and 10 crocks of herring per month. Now the government subsidizes potatoes. Market prices haven't changed, but consumers get a subsidy of 5 crowns for every sack of potatoes consumed. To pay for this subsidy, the government introduced an income tax. Lars pays an income tax of 20 crowns per month. If s is the number of sacks of potatoes and c is the number of crocks of herring, what is Lars's NEW budget equation?

(a) $9s + 5c = 100$.

(b) $14s + 5c = 95$.

(c) $4s + 5c = 95$.

(d) $4s + 5c = 75$.

(e) $14s + 5c = 120$.

MULTIPLE CHOICE

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 17
Correct Answer: C

2.21   If you spent your entire income, you could afford either 4 units of x and 8 units of y or 8 units of x and 4 units of y. If you spent your entire income on x, how many units of x could you buy?

(a) 20

(b) 17

(c) 12

(d) There is not enough information to determine the amount of x.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 17
Correct Answer: C

2.22   If you spent your entire income, you could afford either 5 units of x and 15 units of y or 15 units of x and 5 units of y. If you spent your entire income on x, how many units of x could you buy?

(a) 35

(b) 24

(c) 20

(d) There is not enough information to determine the amount of x.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 10
Correct Answer: C

2.23   Bella's budget line for x and y depends on all of the following except:

(a) the amount of money she has to spend on x and y.

(b) the price of x.

(c) her preferences between x and y.

(d) the price of y.

(e) none of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 94   Discrimination Index: 26
Correct Answer: D

2.24   Your budget constraint for the two goods A and B is $12A + 4B = I$ where I is your income. You are currently consuming more than 45 units of B. In order to get 5 more units of A, how many units of B would you have to give up?

(a) 0.33

(b) 0.07

(c) 3

(d) 15

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 94   Discrimination Index: 26
Correct Answer: D

2.25   Your budget constraint for the two goods A and B is $6A + 3B = I$ where I is your income. You are currently consuming more than 12 units of B. In order to get 2 more units of A, how many units of B would you have to give up?

(a) 0.50

(b) 0.25

(c) 2

(d) 4

(e) None of the above.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 70

Discrimination Index: 32

Correct Answer: A

2.26 Young Alasdair loves lollipops and hates oatmeal. To induce him to eat enough oatmeal and to restrain him from eating too many lollipops, his mum pays him 10 pence for every quart of oatmeal that he eats. The only way that he can get lollipops is to buy them at the sweet shop, where lollipops cost 5 pence each. Besides what he earns from eating oatmeal, Alasdair gets an allowance of 10 pence per week. If Alasdair consumes only oatmeal and lollipops and if his consumption bundles are graphed with quarts of oatmeal on the horizontal axis and lollipops on the vertical axis, then Alasdair's budget line:

(a) has a slope of 2.

(b) has a slope of less than -2.

(c) has a slope of -2.

(d) has a slope of 1/2.

(e) has a slope greater than 2.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 41

Discrimination Index: 30

Correct Answer: C

2.27 The Chuzzlewits have an income of \$$m$ per week. Let x be food and let y be all other goods. Let p_x be the price of food and p_y be the price of other goods. They can use food stamps to buy food at a price of $p_x(1-s)$ for up to x* units of food per week. If they buy more food than x*, they have to pay the full price, p_x for additional units. Their weekly income is greater than $p_x(1-s)x*$. The maximum amount of food that they can buy per week is:

(a) $x*+(m/p_x)$

(b) $(m+x*)/p_x$

(c) $(m/p_x)+sx*$

(d) $m/(1-s)p_x$

(e) $(m+p_x)/(1-s)p_x$

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 100   Discrimination Index: 0
Correct Answer: C

2.28   Edmund must pay \$6 each for punk rock video casettes, V. If Edmund is paid \$24 per sack for accepting garbage, G, and if his relatives send him an allowance of \$192, then his budget line is described by the equation:

(a) $6V = 24G$.

(b) $6V + 24G = 192$.

(c) $6V - 24G = 192$.

(d) $6V = 192 - G$.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 100   Discrimination Index: 0
Correct Answer: C

2.29   Edmund must pay \$6 each for punk rock video casettes, V. If Edmund is paid \$24 per sack for accepting garbage, G, and if his relatives send him an allowance of \$168, then his budget line is described by the equation:

(a) $6V = 24G$.

(b) $6V + 24G = 168$.

(c) $6V - 24G = 168$.

(d) $6V = 168 - G$.

(e) None of the above.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

2.30   If you have an income of \$40 to spend, if commodity 1 costs \$4 per unit, and commodity 2 costs \$20 per unit, then the equation for your budget line can be written as:

(a) $x_1/4 + x_2/20 = 40$.

(b) $(x_1 + x_2)/(24) = 40$.

(c) $x_1 + 5x_2 = 10$.

(d) $5x_1 + 21x_2 = 41$.

(e) $24(x_1 + x_2) = 40$.

Topic: Budget Constraint

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

2.31 If you have an income of \$36 to spend, if commodity 1 costs \$4 per unit, and commodity 2 costs \$12 per unit, then the equation for your budget line can be written as:

(a) $x_1/4 + x_2/12 = 36$.

(b) $(x_1 + x_2)/(16) = 36$.

(c) $x_1 + 3x_2 = 9$.

(d) $5x_1 + 13x_2 = 37$.

(e) $16(x_1 + x_2) = 36$.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 20

Correct Answer: A

2.32 If you could exactly afford either 5 units of x and 17 units of y, or 8 units of x and 5 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 37

(b) 25

(c) 49

(d) 13

(e) None of the above.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 20

Correct Answer: A

2.33 If you could exactly afford either 6 units of x and 17 units of y, or 9 units of x and 8 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 35

(b) 26

(c) 44

(d) 15

(e) None of the above.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 99   Discrimination Index: 4
Correct Answer: B

2.34   Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 5 and the price of Y rose to 7, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 600

(b) 450

(c) 300

(d) 900

(e) None of the above.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 99   Discrimination Index: 4
Correct Answer: B

2.35   Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 6 and the price of Y rose to 8, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 800

(b) 600

(c) 400

(d) 1,200

(e) None of the above.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

2.36   This weekend, Martha has time to read 40 pages of economics and 30 pages of sociology. Alternatively, she could read 20 pages of economics and 70 pages of sociology. Which of these equations describes all combinations of pages of economics, E, and sociology, S, that she could read over the weekend?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $2E + S = 110$

(d) $E + S = 90$

(e) All of the above.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

2.37 This weekend, Martha has time to read 40 pages of economics and 30 pages of sociology. Alternatively, she could read 20 pages of economics and 110 pages of sociology. Which of these equations describes all combinations of pages of economics, E, and sociology, S, that she could read over the weekend?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $4E + S = 190$

(d) $E + S = 130$

(e) All of the above.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: A

Difficulty: 2
Discrimination Index: 0

2.38 Ads in a slick business magazine are read by 300 lawyers and 1000 M.B.A's. Ads in a consumer publication are read by 250 lawyers and 300 $M.B.A.'s$. If Harry had \$ 3,600 to spend on advertising, if the price of ads in the business magazine were \$600 and the price of ads in the consumer magazine were \$300, then the combinations of recent $M.B.A.'s$ and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points:

(a) $(3,000; 3,600)$ and $(1,800; 6,000)$.

(b) $(3,600; 4,200)$ and $(1,800; 7,200)$.

(c) $(0; 3,600)$ and $(1,800; 0)$.

(d) $(3,600; 0)$ and $(0; 7,200)$.

(e) $(2,400; 0)$ and $(0; 6,000)$.

2.39   Ads in a slick business magazine are read by 300 lawyers and 1000 M.B.A's. Ads in a consumer publication are read by 250 lawyers and 300 *M.B.A.'s*. If Harry had $ 2,600 to spend on advertising, if the price of ads in the business magazine were $400 and the price of ads in the consumer magazine were $200, then the combinations of recent *M.B.A.'s* and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points:

(a) $(3,250; 3,900)$ and $(1,950; 6,500)$.

(b) $(3,900; 4,550)$ and $(1,950; 7,800)$.

(c) $(0; 3,900)$ and $(1,950; 0)$.

(d) $(3,900; 0)$ and $(0; 7,800)$.

(e) $(2,600; 0)$ and $(0; 6,500)$.

2.40   In the economy of Mungo, discussed in your workbook, there is a third person called Ike. Ike has a red income of 56 and a blue income of 10. (Recall that blue prices are 1 bcu [blue currency unit] per unit of ambrosia and 1 bcu per unit of bubblegum. Red prices are 2 rcus [red currency units] per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of his blue income, but not all of his red income, then it must be that:

(a) he consumes at least 9 units of bubblegum.

(b) he consumes at least 1 units of ambrosia.

(c) he consumes exactly twice as much bubblegum as ambrosia.

(d) he consumes at least 17 units of bubblegum.

(e) he consumes equal amounts of ambrosia and bubblegum.

Topic: Budget Constraint
% Correct Responses: 60
Correct Answer: B

Difficulty: 2
Discrimination Index: 47

2.41 In the economy of Mungo, discussed in your workbook, there is a third person called Ike. Ike has a red income of 40 and a blue income of 10. (Recall that blue prices are 1 bcu [blue currency unit] per unit of ambrosia and 1 bcu per unit of bubblegum. Red prices are 2 rcus [red currency units] per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of his blue income, but not all of his red income, then it must be that:

(a) he consumes at least 5 units of bubblegum.

(b) he consumes at least 5 units of ambrosia.

(c) he consumes exactly twice as much bubblegum as ambrosia.

(d) he consumes at least 14 units of bubblegum.

(e) he consumes equal amounts of ambrosia and bubblegum.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: A

Difficulty: 2
Discrimination Index: 0

2.42 Deadly Serious, II, studying for his M.B.A., consumes only two goods, Wheaties and pens. Each pen costs $1. Each box of Wheaties costs $2 but has a "free" pen inside. Pens can be discarded at no cost. If we draw Serious's budget set with pens plotted on the horizontal axis, then his budget set will be bounded by two line segments with slopes:

(a) zero and −1.

(b) zero and −2.

(c) zero and −.5.

(d) zero and infinity.

(e) zero and +2.

Topic: Budget Constraint
% Correct Responses: 78
Correct Answer: D

Difficulty: 0
Discrimination Index: 49

2.43   Suppose there are two goods, the prices of both goods are positive and a consumer's income is also positive. If the consumer's income doubles and the price of both goods triple,

(a) the consumer's budget line gets steeper and shifts inward.

(b) the slope of the consumer's budget line does not change but the budget line shifts outward away from the origin.

(c) the consumer's budget line gets steeper and shifts outward.

(d) the slope of the consumer's budget line does not change but the budget line shifts inward toward the origin.

(e) the consumer's budget line gets flatter and shifts inward.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: B

Difficulty: 0
Discrimination Index: 0

2.44   Thomas consumes coffee (C) and doughnuts (D). His budget line was described by the equation $D = 20 - 2C$. At a later time, his budget line could be described by the equation $D = 10 - C$. The change between the earlier budget line and the later could be explained by the following.

(a) The price of coffee and Thomas's income both increased.

(b) The price of coffee increased and Thomas's income decreased.

(c) The price of coffee decreased and Thomas's income increased.

(d) The price of coffee and Thomas's income both decreased.

(e) Thomas's utility for doughnuts decreased.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

2.1   Perry lives on avocados and beans. The price of avocados is 10, the price of beans is 5, and his income is 40. Show Perry's budget line on a graph with avocados on the horizontal axis and beans on the vertical axis. Label the point where the budget line hits the horizontal axis A and the point where the budget line hits the vertical axis B. Next to these labels, write down the number of avocados purchased at A and the number of beans purchased at B. Draw another budget line showing what Perry's budget would be if his income doubled, the price of avocados doubled, and the price of beans stayed the same. Label the point where this line hits the vertical axis C and the point where it hits the horizontal axis D. Next to these labels write the number of avocados at C and the number of beans at D.

Answer: At A there are 4 avocados. At B there are 8 units of beans. At C there are 4 avocados. At D there are 16 units of beans.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

2.2   Brenda likes hot dogs and Coca-Cola. Hot dogs cost \$1 each and Cokes cost \$.50 per bottle. There is a special promotion for Coke that will last for one month. If Brenda sends in the bottle tops from the Cokes she drinks during the next month, she will get a refund of \$.20 for every bottlecap beyond the first 12 that she returns. For example, if she returns 25 bottle caps she will get back \$2.60 = \$.20(25 − 12). Brenda has \$40 to spend on hot dogs and Coke during the next month. Draw her budget line with Coke on the horizontal axis and hot dogs on the vertical axis. Find the points where the budget line hits the axes and the point where it has a kink. At each of these three points write down the quantities of each good consumed.

Answer: The budget line runs from $(0, 40)$ on the vertical axis to a kink point $(12, 34)$ and from $(12, 34)$ to about $(125.3, 0)$.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

2.3   Felicity is studying economics and political science. She can read 30 pages of political science per hour but only 5 pages of economics per hour. This week she has a 50 page assignment in economics and a 150 page assignment in political science. Because of sorority rush, she cannot devote more than 10 hours to studying these subjects this week. She realizes she cannot complete all of her assignments but is determined to complete at least 30 pages of her economics reading. Draw a graph with pages of economics on the horizontal axis and pages of political science on the vertical axis. On this graph, show the possibilities that are consistent with the constraints that Felicity has imposed on herself. (She is allowed to read ahead in either subject.) Label key points on your graph with their numerical values.

Answer: Anything in the triangle bounded by $(0, 300)$, $(30, 120)$ and $(30, 0)$ satisfies these constraints.

Topic: Budget Constraint   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

2.4   Ed Moore and his family live in a city with many private schools and one public school. The Moores are thinking of sending their only child to private school because they would like a school that has more teachers and other resources per student than the local public school. The Moores must pay taxes to support local public schools whether or not their child goes to private school. There is such a variety of private schools that the Moores can get just about any level of inputs per student by choosing the appropriate private school. Tuition in the private schools equals expenditure per student. Draw a diagram to show the Moores' budget constraint. Put expenditures per student in the child's school on the horizontal axis and other goods on the vertical.

Answer: One point is (x, d) where x is expenditures per pupil in public school and d is disposable income. The rest of the budget is a line with slope -1 from $(2s, d - x)$ to the x axis.

Chapter 3

Topic: Preferences   Difficulty: 1
% Correct Responses: 70   Discrimination Index: 31
Correct Answer: False

3.1   If preferences are transitive, more is always preferred to less.

Topic: Preferences   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 21
Correct Answer: False

3.2   A person with reflexive preferences is someone who does not shop carefully.

Topic: Preferences   Difficulty: 2
% Correct Responses: 94   Discrimination Index: 6
Correct Answer: True

3.3   If someone has the utility function $U = 1000 + 2min\{x, y\}$ then x and y are perfect complements for that person.

Topic: Preferences   Difficulty: 1
% Correct Responses: 68   Discrimination Index: 40
Correct Answer: True

3.4   A consumer with convex preferences who is indifferent between the bundles $(1,2)$ and $(9,6)$ will like the bundle $(5,4)$ at least as well as either of the first two bundles.

Topic: Preferences   Difficulty: 1
% Correct Responses: 68   Discrimination Index: 40
Correct Answer: True

3.5   A consumer with convex preferences who is indifferent between the bundles $(2,3)$ and $(10,9)$ will like the bundle $(6,6)$ at least as well as either of the first two bundles.

Topic: Preferences   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 0
Correct Answer: True

3.6   If there are two goods, if a consumer prefers more of each good to less, and if she has diminishing marginal rate of substitution, then her preferences are convex.

Topic: Preferences   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 11
Correct Answer: False

3.7   If preferences are convex, then for any commodity bundle x, the set of commodity bundles that are worse than x is a convex set.

Topic: Preferences   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 0
Correct Answer: False

3.8   Bill Katz prefers more of good 1 to less and he prefers less of good 2 to more. Bill has convex preferences. If we draw his indifference curves with good 1 on the horizontal axis and good 2 on the vertical axis, then his indifference curves have positive slope but get steeper as they rise.

Topic: Preferences   Difficulty: 1
% Correct Responses: 99   Discrimination Index: 0
Correct Answer: False

3.9   The marginal rate of substitution measures the distance between one indifference curve and the next one.

Topic: Preferences   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 11
Correct Answer: False

3.10   Ambrose has an indifference curve with equation $x_2 = 20 - 4x_1^{1/2}$. When Ambrose is consuming the bundle $(4, 16)$, his marginal rate of substitution is $-5/4$.

Topic: Preferences   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 34
Correct Answer: False

3.11   Nancy's psychology teacher will give her a course grade that is the maximum of her scores on three midterm examinations. Nancy has convex preferences over the possible combinations of midterm scores.

Topic: Preferences

% Correct Responses: 39

Correct Answer: False

Difficulty: 3

Discrimination Index: 26

3.12 If Melody has more classical records than rock and roll records, she is willing to exchange exactly 1 classical record for 2 rock and roll records, but if she has more rock and roll records than classical records, then she is willing to exchange exactly 1 rock and roll record for 2 classical records. Melody has convex preferences.

Topic: Preferences

% Correct Responses: 71

Correct Answer: False

Difficulty: 1

Discrimination Index: 17

3.13 Josephine buys 3 quarts of milk and 2 pounds of butter when milk sells for \$2 a quart and butter sells for \$1 a pound. Wilma buys 2 quarts of milk and 3 pounds of butter at the same prices. Josephine's marginal rate of substitution between milk and butter is greater than Wilma's.

Topic: Preferences

% Correct Responses: 29

Correct Answer: True

Difficulty: 2

Discrimination Index: 29

3.14 A consumer who is unable to detect small differences in the amount of water in her beer could have a transitive strict preference relation but is unlikely to have a transitive indifference relation.

Topic: Preferences

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 23

Correct Answer: B

3.1 Fanny consumes goods x and y. Her indifference curves are described by the formula $y = k/(x + 7)$. Higher values of k correspond to better indifference curves. Which of the following is true?

(a) Fanny likes good y and hates good x.

(b) Fanny prefers bundle $(8, 9)$ to bundle $(9, 8)$.

(c) Fanny prefers bundle $(9, 5)$ to bundle $(5, 9)$.

(d) Fanny likes good x and hates good y.

(e) More than one of the above statements are true.

Topic: Preferences

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 23

Correct Answer: B

3.2 Heidi consumes goods x and y. Her indifference curves are described by the formula $y = k/(x + 6)$. Higher values of k correspond to better indifference curves. Which of the following is true?

(a) Heidi likes good y and hates good x.

(b) Heidi prefers bundle $(10, 15)$ to bundle $(15, 10)$.

(c) Heidi prefers bundle $(9, 8)$ to bundle $(8, 9)$.

(d) Heidi likes good x and hates good y.

(e) More than one of the above statements are true.

Topic: Preferences

Difficulty: 1

% Correct Responses: 67

Discrimination Index: 14

Correct Answer: D

3.3 George's indifference curves are circles, all of which are centered at $(18, 20)$. Of any two indifference circles, he would rather be on the inner one than the outer one. Which of the following is true?

(a) George's preferences are not complete.

(b) George prefers $(24, 26)$ to $(14, 17)$.

(c) George $prefers(14, 26)$ to $(14, 17)$.

(d) George prefers $(16, 19)$ to $(23, 26)$.

(e) More than one of the above statements are true.

Topic: Preferences

Difficulty: 1

% Correct Responses: 67

Discrimination Index: 14

Correct Answer: D

3.4 Yoram's indifference curves are circles, all of which are centered at $(12, 19)$. Of any two indifference circles, he would rather be on the inner one than the outer one. Which of the following is true?

(a) Yoram's preferences are not complete.

(b) Yoram prefers $(18, 25)$ to $(8, 16)$.

(c) Yoram $prefers(8, 25)$ to $(8, 16)$.

(d) Yoram prefers $(8, 17)$ to $(18, 28)$.

(e) More than one of the above statements are true.

Topic: Preferences

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

3.5 Manuel consumes only apples and bananas. He prefers more apples to less, but he gets tired of bananas. If he consumes fewer than 17 bananas per week, he thinks that one banana is a perfect substitute for one apple. But you would have to pay him one apple for each banana beyond 17 that he consumes. The indifference curve that passes through the consumption bundle with 25 apples and 26 bananas also passes through the bundle with A apples and 11 bananas, where A equals:

(a) 21

(b) 22

(c) 24

(d) 26

(e) None of the above.

Topic: Preferences

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

3.6 Wilbur consumes only apples and bananas. He prefers more apples to less, but he gets tired of bananas. If he consumes fewer than 18 bananas per week, he thinks that one banana is a perfect substitute for one apple. But you would have to pay him one apple for each banana beyond 18 that he consumes. The indifference curve that passes through the consumption bundle with 27 apples and 30 bananas also passes through the bundle with A apples and 13 bananas, where A equals:

(a) 17

(b) 20

(c) 26

(d) 28

(e) None of the above.

Topic: Preferences

Difficulty: 1

% Correct Responses: 75

Discrimination Index: 50

Correct Answer: E

3.7 If two goods are both desirable and preferences are convex, then:

(a) there must be a kink in the indifference curves.

(b) indifference "curves" must be straight lines.

(c) if two bundles are indifferent, then an average of the two bundles is worse than either one.

(d) the marginal rate of substitution is constant along indifference curves

(e) None of the above.

Topic: Preferences

Difficulty: 2

% Correct Responses: 53

Discrimination Index: 34

Correct Answer: B

3.8 If there are only two goods, if more of good 1 is always preferred to less, and if less of good 2 is always preferred to more, then:

(a) indifference curves slope downwards.

(b) indifference curves slope upwards.

(c) indifference curves may cross.

(d) indifference curves could take the form of ellipses.

(e) None of the above.

Topic: Preferences

Difficulty: 2

% Correct Responses: 75

Discrimination Index: 29

Correct Answer: D

3.9   If two goods are perfect complements:

(a) there is a bliss point and the indifference curves surround this point.

(b) consumers will only buy the cheaper of the two goods.

(c) indifference curves have a positive slope.

(d) None of the above.

Topic: Preferences

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

3.10   The relation "is preferred to" between commodity bundles is just one example of a binary relation. Another example is the relation "is a full brother of" defined over the set of all human beings. Let xRy mean person x is a full brother of person y.

(a) The relation R is reflexive, transitive, and complete.

(b) The relation R is transitive and complete but not reflexive.

(c) The relation R is transitive but not complete or reflexive.

(d) The relation R is complete but not transitive or reflexive.

(e) The relation R is neither reflexive, transitive, nor complete.

Topic: Preferences

Difficulty: 1

% Correct Responses: 61

Discrimination Index: 20

Correct Answer: C

3.11   Preferences are said to be monotonic if:

(a) all goods must be consumed in fixed proportions.

(b) all goods are perfect substitutes.

(c) more is always preferred to less.

(d) there is diminishing marginal rate of substitution.

(e) None of the above.

Topic: Preferences   Difficulty: 3
% Correct Responses: 8   Discrimination Index: 0
Correct Answer: C

3.12   Toby Talkalot subscribes to a local phone service that charges a fixed fee of \$10 per month and allows him to place as many local phone calls as he likes without further charge. Let Good 1 be an aggregate of commodities other than local phone use and let Good 2 be local phone use. (Measure Good 1 on the horizontal axis and Good 2 on the vertical axis.) On Monday, Toby didn't use the telephone at all. From this we can conclude that the slope m of his indifference curve at the consumption bundle he chose on Monday was:

(a) positive.

(b) less than or equal to 0.

(c) 0.

(d) greater than or equal to 0.

(e) negative.

Topic: Preferences   Difficulty: 3
% Correct Responses: 22   Discrimination Index: 26
Correct Answer: B

3.13   Professor Goodheart's colleague Dr. Kremepuff gives 3 midterm exams. He drops the lowest and gives each student her average score on the other two exams. Polly Sigh is taking his course and has a 60 on her first exam. Let x_2 be her score on the second exam and x_3 be her score on the third exam. If we draw her indifference curves for scores on the second and third exams with x_2 represented by the horizontal axis and x_3 represented by the vertical axis, then her indifference curve through the point $(x_2, x_3) = (50, 70)$ is:

(a) L-shaped with a kink where $x_2 = x_3$.

(b) three line segments, one vertical, one horizontal, and one running from $(70, 60)$ to $(60, 70)$.

(c) a straight line, running from $(0, 120)$ to $(120, 0)$.

(d) three line segments, one vertical, one horizontal, and one running from $(70, 50)$ to $(50, 70)$.

(e) a V-shaped curve with its point at $(50, 70)$.

Topic: Preferences

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 19

Correct Answer: E

3.14   Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants denote better indifference curves. Charlie strictly prefers the bundle $(10, 19)$ to the bundle:

(a) $(19, 10)$.

(b) $(11, 18)$.

(c) $(15, 15)$.

(d) more than one of these bundles.

(e) none of these bundles.

Topic: Preferences

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 19

Correct Answer: E

3.15   Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants denote better indifference curves. Charlie strictly prefers the bundle $(9, 19)$ to the bundle:

(a) $(19, 9)$.

(b) $(10, 18)$.

(c) $(12, 15)$.

(d) more than one of these bundles.

(e) none of these bundles.

Topic: Preferences

Difficulty: 2

% Correct Responses: 77

Discrimination Index: 17

Correct Answer: C

3.16   Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$ where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(16, 9)$?

(a) $-16/9$

(b) $-9/16$

(c) -0.50

(d) -13

(e) -4

Topic: Preferences

Difficulty: 2

% Correct Responses: 77

Discrimination Index: 17

Correct Answer: C

3.17 Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$ where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(9, 14)$?

(a) $-9/14$

(b) $-14/9$

(c) -0.67

(d) -17

(e) -3

Topic: Preferences

Difficulty: 2

% Correct Responses: 93

Discrimination Index: 4

Correct Answer: A

3.18 Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 40 on her first midterm and 50 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point (40,50). Therefore it must be that:

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) None of the other options are correct.

Topic: Preferences

Difficulty: 2

% Correct Responses: 93

Discrimination Index: 4

Correct Answer: A

3.19 Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 70 on her first midterm and 60 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(70,60)$. Therefore it must be that:

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) None of the other options are correct.

Topic: Preferences

Difficulty: 2

% Correct Responses: 56

Discrimination Index: 65

Correct Answer: D

3.20 If we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 11 avocados and 23 grapefruits and another bundle that has 19 avocados and:

(a) 15 grapefruits.

(b) 19 grapefruits.

(c) 11 grapefruits.

(d) 13 grapefruits.

(e) 14 grapefruits.

Topic: Preferences

Difficulty: 2

% Correct Responses: 56

Discrimination Index: 65

Correct Answer: D

3.21   If we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is −2. Whenever she has more avocados than grapefruits, the slope is −1/2. Mary would be indifferent between a bundle with 24 avocados and 36 grapefruits and another bundle that has 32 avocados and:

(a) 28 grapefruits.

(b) 32 grapefruits.

(c) 24 grapefruits.

(d) 26 grapefruits.

(e) 27 grapefruits.

Topic: Preferences

Difficulty: 2

% Correct Responses: 75

Discrimination Index: 29

Correct Answer: B

3.22   Recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7)$ − −*that* is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (5, 4)$ also passes through:

(a) the point $(8, 1)$.

(b) the points $(2, 1)$, $(8, 7)$, and $(5, 10)$.

(c) the point $(2, 7)$.

(d) the points $(5, 7)$, $(2, 4)$, and $(2, 10)$.

(e) None of the above.

Topic: Preferences

% Correct Responses: 75

Correct Answer: B

Difficulty: 2

Discrimination Index: 29

3.23 Recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7)$ − −*that* is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (3, 6)$ also passes through:

(a) the point $(4, 5)$.

(b) the points $(2, 5)$, $(4, 7)$, and $(3, 8)$.

(c) the point $(2, 7)$.

(d) the points $(3, 7)$, $(2, 6)$, and $(2, 8)$.

(e) None of the above.

Topic: Preferences

% Correct Responses: 0

Correct Answer: D

Difficulty: 0

Discrimination Index: 0

3.24 Scholastica is taking a class from Professor Chaos. Professor Chaos gives two tests in this course and determines a student's grade as follows. He calculates the smaller of the following two numbers: half of the score on the first test (which is a relatively easy test) and the actual score on the second test. He gives each student a numerical score equal to the result of this calculation and then ranks the students. Scholastica would like to be ranked as high as possible in Professor Chaos' rankings. If we represent her score on the first exam on the horizontal axis and her score on the second exam on the vertical axis, then her indifference curves:

(a) are L-shaped with kinks where the two exam scores are equal.

(b) have sections with a slope −2 and sections with a slope 1/2.

(c) are positively sloped.

(d) are L-shaped with kinks where the exam 1 score is twice the exam 2 score.

(e) are straight lines with a slope of −1/2.

Topic: Preferences

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

3.25   In Professor Meanscore's class, the first midterm exam and the second midterm exam are weighted equally toward the final grade. With the first midterm's score on the horizontal axis, and the second midterm's score on the vertical axis, indifference curves between the two exam scores are

(a) L-shaped with lines extending upward and to the right.

(b) L-shaped with lines extending downward and to the left.

(c) parabola shaped.

(d) straight lines with slope -1.

(e) straight lines with slope 2.

Topic: Preferences

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

3.26   Professor Stern's colleague, Dr. Schmertz, gives one midterm exam and a final exam. He weights the final twice as heavily as the midterm to determine the course grade. No grades can be dropped. If the midterm score is represented on the horizontal axis and the final score on the vertical axis, and if a student in Dr. Schmertz's class cares only about her course grade, her indifference curve is

(a) a line with slope -2.

(b) a line with slope -1.

(c) a line with slope -0.5.

(d) L-shaped with the kink at $(x, 2x)$.

(e) L-shaped with the kink at $(2x, x)$.

Topic: Preferences

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

3.27   I prefer 6 apples and 1 orange to 5 apples and 2 oranges. From this we can conclude that

(a) my preferences are transitive.

(b) my preferences are complete.

(c) my preferences are convex.

(d) my preferences obey the Law of Demand.

(e) none of the above.

Topic: Preferences

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

3.1 Draw graphs with quantities of pepperoni pizza on the horizontal axis and anchovy pizza on the vertical axis to illustrate the following situations. In each case draw two different indifference curves and make a little arrow pointing in the direction of greater preference.

a) Marvin loves pepperoni pizza and hates anchovy pizza.

b) Mavis hates anchovy pizza and is completely indifferent about pepperoni pizza.

Answer: a) Indifference curves slopes up and to the right. Arrow points down and to the left. *b*) Indifference curves are horizontal lines. Arrow points down.

Topic: Preferences   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

3.2   Coach Steroid likes his players to be big, fast, and obedient. If player A is better than player
B in two of these three characteristics, Steroid will prefer A to B. Three players try out for quar-
terback. Wilbur Westinghouse weighs 320 pounds, runs very slowly, and is quite obedient. Harold
Hotpoint weighs 240 pounds, runs extremely fast, and is extremely disobedient. Jerry Jacuzzi
weighs 150 pounds, runs at average speed, and is extremely obedient. Does Coach Steroid have
transitive preferences? Explain your answer.

Answer: No. Steroid prefers W to H because W is heavier and more obedient. He prefers H to J
because H is heavier and faster. But he prefers J to W because J is more obedient and faster than
W. Since his preferences have a cycle, they cannot be transitive.

Topic: Preferences   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

3.3   Belinda loves chocolate and always thinks that more is better than less. Belinda thinks that
a few piano lessons would be worse than none at all but if she had enough piano lessons to get
good at playing the piano, she would prefer more lessons to less. Draw a graph with piano lessons
on the horizontal axis and chocolate on the vertical axis. On your graph sketch two indifference
curves for Belinda that would be consistent with this story. Label the better of the two indifference
curves AA and the worse one BB.

Answer: The indifference curves would look something like inverted $U's$. (The area under these
curves needn't be necessarily convex.) The better of the two curves drawn is the higher one.

Topic: Preferences   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

3.4 Mac Rowe doesn't sweat the petty stuff. In fact, he just cannot detect small differences. He consumes two goods, x and y. He prefers the bundle (x, y) to the bundle (x', y') if and only if $xy - x'y' > 1$. Otherwise he is indifferent between the two bundles. Show:

(a) that the relation of indifference is not transitive for Mac (Hint: Give an example.)

(b) that the preferred relation is transitive for Mac.

Answer: Consider the bundles $A = (1, 1)$, $B = (1, 1.75)$, $C = (1, 2.5)$. Then A is indifferent to B and B to C but C is preferred to A. To see that strict preference is transitive, suppose we have any three bundles, (x, y), (x', y') and (x'', y''). If the first is preferred to the second and the second to the third, then $xy - x'y' > 1$ and $x'y' - x''y'' > 1$. Simple algebra shows that $xy - x''y'' > 1$. Therefore the first must be preferred to the third.

Topic: Preferences   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

3.5 Blanche Carter has devised a system for rating the males in her economics class. She cares about their intelligence and their looks. She has ranked each male on a scale of 1 to 5 for intelligence and 1 to 3 for looks. She defines a preference re lation, R, as follows: xRy if boy x scores at least as high as boy y in either looks or in intelligence. Give an example to show that Blanche's method of determining preferences might not lead to transitive preferences.

Answer: Suppose boy x has rankings 1 and 2, boy y has rankings 3 and 1 and boy z has rankings 2 and 3. Then xRy because x is better looking than y and yRz because y is smarter than z. But it is not true that xRz. In fact z is both smarter and better looking than x.

Topic: Preferences   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

3.6 Explain how it would be possible to cheat someone who had intransitive preferences. Be explicit about what you would offer him if you were trying to exploit his intransitivity and what he would do in response.

Answer: Suppose that he has bundle C right now and prefers A to B, B to C, and C to A. If you offer him a trade that leaves him at B instead of C, he will accept the deal. If you now offer him a trade that leaves him at A instead of B, he will accept that. But he will prefer to be back where he originally was to where he is. So you could offer to give him back his original bundle, minus a reward to you for your efforts and he would accept the deal.

Topic: Preferences   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

3.7   If good X is measured on the horizontal axis and good Y on the vertical, what can you say about the preferences of someone whose indifference curves are a) Parallel to the Y axis? *b*) Positively sloped with more desirable indiffernce curves as one moves to the right? *c*) Negatively sloped with more desirable indifference curves as one moves to the left?

Answer: a) This person doesn't care how much X he has. *b*) This person likes X but hates Y. *c*) This person hates both goods.

Topic: Preferences   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

3.8   Suppose that there are two commodities and a consumer prefers more to less of each good. If the consumer has transitive preferences, can her indifference curves cross? Sketch a brief proof of your answer, and illustrate with a diagram.

Answer: See the textbook.

Chapter 4

Topic: Utility
% Correct Responses: 85
Correct Answer: False

Difficulty: 2
Discrimination Index: 10

4.1   With quasilinear preferences, the slope of indifference curves is constant along all rays through the origin.

Topic: Utility
% Correct Responses: 82
Correct Answer: False

Difficulty: 2
Discrimination Index: 45

4.2   Wanda Lott has the utility function $U(x, y) = max\{x, y\}$. Wanda's preferences are convex.

Topic: Utility
% Correct Responses: 96
Correct Answer: True

Difficulty: 1
Discrimination Index: 20

4.3   If someone has a utility function $U = 2min\{x, y\}$, then x and y are perfect complements for that person.

Topic: Utility
% Correct Responses: 66
Correct Answer: False

Difficulty: 1
Discrimination Index: 20

4.4   Maximilian consumes two goods x and y. His utility function is $U(x, y) = max\{x, y\}$. Therefore x and y are perfect substitutes for Max.

Topic: Utility
% Correct Responses: 36
Correct Answer: False

Difficulty: 3
Discrimination Index: 11

4.5   A person with the utility function $U(x, y) = y + x^2$ has convex preferences.

Topic: Utility
% Correct Responses: 25
Correct Answer: True

Difficulty: 3
Discrimination Index: 47

4.6   Mr. Surly consumes only two goods and hates them both. His utility function is $U(x, y) = -max\{x, y\}$. Mr. Surly has (*weakly*) convex preferences.

Topic: Utility   Difficulty: 2
% Correct Responses: 71   Discrimination Index: 43
Correct Answer: True

4.7   Angela's utility function is $U(x_1, x_2) = (x_1 + x_2)^3$. Her indifference curves are downward-sloping, parallel straight lines.

Topic: Utility   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 0
Correct Answer: True

4.8   Henrietta's utility function is $U(x_1, x_2) = x_1 x_2$. She has diminishing marginal rate of substitution between goods 1 and 2.

Topic: Utility   Difficulty: 2
% Correct Responses: 66   Discrimination Index: 8
Correct Answer: False

4.9   Alice's utility function is $U(x, y) = x^2 y$. Steve's utility function is $U(x, y) = x^2 y + 2x$. Alice and Steve have the same preferences since Steve's utility function is a monotonic transformation of Alice's.

Topic: Utility   Difficulty: 3
% Correct Responses: 78   Discrimination Index: 29
Correct Answer: False

4.10   Jean's utility function is $U(x, y) = x + y^2 - y$. If we draw her indifference curves with x on the horizontal axis and y on the vertical axis, then these indifference curves are everywhere downward-sloping and get flatter as one moves from left to right.

Topic: Preferences   Difficulty: 1
% Correct Responses: 99   Discrimination Index: 4
Correct Answer: True

4.11   The utility function $U(x_1, x_2) = 2ln\ x_1 + 3ln\ x_2$ represents Cobb-Douglas preferences.

Topic: Preferences

% Correct Responses: 92

Correct Answer: False

Difficulty: 1

Discrimination Index: 29

4.12 Fiery Demon is a rotgut whisky made in Kentucky. Smoothy is an unblended malt whisky imported from Scotland. Ed regards these brands as perfect substitutes. When he goes into a bar, he sometimes buys only Fiery Demon. Other times he buys only Smoothy. This shows that Ed has unstable preferences.

Topic: Utility

% Correct Responses: 93

Correct Answer: False

Difficulty: 1

Discrimination Index: 16

4.13 Mark strictly prefers consumption bundle A to consumption bundle B and weakly prefers bundle B to bundle A. These preferences can be represented by a utility function.

Topic: Utility

% Correct Responses: 63

Correct Answer: True

Difficulty: 3

Discrimination Index: 80

4.14 A consumer has preferences represented by the utility function $U(x_1, x_2) = 10(x_1^2 + 2x_1x_2 + x_2^2) - 50$. For this consumer, goods 1 and 2 are perfect substitutes.

Topic: Utility

% Correct Responses: 52

Correct Answer: True

Difficulty: 1

Discrimination Index: 38

4.15 A person with utility function $U(x, y) = 5 + y^2 + 2x$ has non-convex preferences.

Topic: Utility

% Correct Responses: 64

Correct Answer: False

Difficulty: 2

Discrimination Index: 26

4.16 A person with the utility function $U(x, y) = 10 + y^2 + x$ has convex preferences.

Topic: Utility

% Correct Responses: 43

Correct Answer: True

Difficulty: 2

Discrimination Index: 29

4.17 A person with the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$ has convex, but not strictly convex preferences.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

4.18   If one utility function is a monotonic transformation of another, then the former must assign a higher utility number to every bundle than the latter.

Topic: Preferences   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

4.19   Quasilinear preferences are homothetic when the optimal amount of good 1 is not affordable.

Multiple Choice   Utility

Topic: Utility   Difficulty: 2
% Correct Responses: 28   Discrimination Index: 17
Correct Answer: A

4.1 Ike's utility function is $U(x,y) = 25xy$. He has 12 units of good x and 8 units of y. Ben's utility function for the same two goods is $U(x,y) = 4x + 4y$. Ben has 9 units of x and 13 units of y.

(a) Ike prefers Ben's bundle to his own bundle, but Ben prefers his own bundle to Ike's.

(b) Ben prefers Ike's bundle to his own, but Ike prefers his own bundle to Ben's.

(c) Each prefers the other guy's bundle to his own.

(d) Neither prefers the other guy's bundle to his own.

(e) Since they have different preferences, there is not enough information to determine who envies whom.

Topic: Utility   Difficulty: 2
% Correct Responses: 28   Discrimination Index: 17
Correct Answer: A

4.2 Nick's utility function is $U(x,y) = 33xy$. He has 12 units of good x and 6 units of y. Boris's utility function for the same two goods is $U(x,y) = 2x + 5y$. Boris has 9 units of x and 13 units of y.

(a) Nick prefers Boris's bundle to his own bundle, but Boris prefers his own bundle to Nick's.

(b) Boris prefers Nick's bundle to his own, but Nick prefers his own bundle to Boris's.

(c) Each prefers the other guy's bundle to his own.

(d) Neither prefers the other guy's bundle to his own.

(e) Since they have different preferences, there is not enough information to determine who envies whom.

Topic: Utility   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 27
Correct Answer: C

4.3 Tim has preferences represented by the utility function: $U(x,y) = min\{6x + y, x + 2y\}$. If x is on the horizontal axis and y is on the vertical axis, what is the slope of his indifference curve at the point $(8,9)$?

(a) The slope is -6.

(b) The slope is $-2/6$.

(c) The slope is $-1/2$.

(d) The slope is $-1/6$.

(e) The slope is $-8/9$.

Topic: Utility   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 27
Correct Answer: C

4.4   Chen has preferences represented by the utility function: $U(x,y) = min\{4x + y, x + 6y\}$. If x is on the horizontal axis and y is on the vertical axis, what is the slope of his indifference curve at the point $(9, 4)$?

(a) The slope is -4.

(b) The slope is $-6/4$.

(c) The slope is $-1/6$.

(d) The slope is $-1/4$.

(e) The slope is $-9/4$.

Topic: Utility   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 9
Correct Answer: C

4.5   Doreen has preferences represented by the utility function $U(x,y) = 10x + 5y$. She consumes 10 units of good x and 9 units of good y. If her consumption of good x is lowered to 1, how many units of y must she have in order to be exactly as well off as before?

(a) 30 units of good y

(b) 30 units of good y

(c) 27 units of good y

(d) 18 units of good y

(e) None of the above

Topic: Utility   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 9
Correct Answer: C

4.6   Sheila has preferences represented by the utility function $U(x,y) = 8x + 4y$. She consumes 12 units of good x and 3 units of good y. If her consumption of good x is lowered to 10, how many units of y must she have in order to be exactly as well off as before?

(a) 12 units of good y

(b) 10 units of good y

(c) 7 units of good y

(d) 5 units of good y

(e) None of the above

Topic: Utility
% Correct Responses: 0
Correct Answer: B

Difficulty: 3
Discrimination Index: 0

4.7   Mac's utility function is $U(x, y) = max\{2x - y, 2y - x\}$.

(a) Mac's preferences are quasi-linear.

(b) If Mac has more x than y, any increase in his consumption of y would lower his utility.

(c) If Mac has more x than y, a decrease in his consumption of y would raise his utility.

(d) Mac always prefers more of each good to less.

(e) Goods x and y are perfect substitutes.

Topic: Utility
% Correct Responses: 30
Correct Answer: C

Difficulty: 2
Discrimination Index: 29

4.8   Charles' utility function is $U(x, y) = xy$. Anne's utility function is $U(x, y) = 1,000xy$. Diana's utility function is $-xy$. Elizabeth's utility function is $U(x, y) = -1/(xy + 1)$. Fergie's utility function is $xy - 10,000$. Margaret's utility function is x/y. Philip's utility function is $x(y + 1)$. (the goods x and y are two very expensive goods. We leave you to speculate about what they are.) Which of these persons have the same preferences as Charles?

(a) Everybody except Diana

(b) Anne and Fergie

(c) Anne, Fergie and Elizabeth

(d) None of them

(e) All of them

Topic: Utility
% Correct Responses: 55
Correct Answer: E

Difficulty: 3
Discrimination Index: 67

4.9   Raymond's preferences are represented by the utility function $U(x, y) = x/y$ if $y > 0$ and $U(x, y) = 0$ if $y = 0$.

(a) Raymond has indifference curves that are rectangular hyperbolas.

(b) Raymond prefers more of each good to less.

(c) Raymond has quasi-linear preferences.

(d) Raymond has a bliss point.

(e) Raymond has indifference curves that are upward sloping straight lines if $y > 0$.

4.10   Molly's utility function is $U(x, y) = y + 4x^{.5}$. She has 25 units of x and 12 units of y. If her consumption of x is reduced to 0, how many units of y would she need in order to be exactly as well off as before?

(a) 48 units.

(b) 37 units.

(c) 32 units.

(d) 112 units.

(e) None of the above.

4.11   Waldo's utility function is $U(x, y) = xy$. Waldo consumes 5 units of x and 25 units of y.

(a) Waldo would be willing to make small exchanges of x for y in which he gives up 5 units of x for every unit of y he gets.

(b) Waldo would be willing to trade away all of his x for y so long he gets more than 5 units of y for every unit of x he gives up.

(c) Waldo likes x and y equally well so he is always willing to exchange 1 unit of either good for more than one unit of the other.

(d) Waldo will always be willing to make trades at any price if he does not have equal amounts of the two goods.

(e) None of the above.

Topic: Utility

Difficulty: 2

% Correct Responses: 21

Discrimination Index: 13

Correct Answer: E

4.12 Ernie's utility function is $U(x,y) = xy$. Ernie consumes 4 units of x and 16 units of y.

(a) Ernie would be willing to make small exchanges of x for y in which he gives up 4 units of x for every unit of y he gets.

(b) Ernie would be willing to trade away all of his x for y so long he gets more than 4 units of y for every unit of x he gives up.

(c) Ernie likes x and y equally well so he is always willing to exchange 1 unit of either good for more than one unit of the other.

(d) Ernie will always be willing to make trades at any price if he does not have equal amounts of the two goods.

(e) None of the above.

Topic: Utility

Difficulty: 2

% Correct Responses: 16

Discrimination Index: 0

Correct Answer: B

4.13 Henry's utility function is $x^2 + 16xw + 64w^2$ where x is his consumption of x and w is his consumption of w.

(a) Henry's preferences are nonconvex.

(b) Henry's indifference curves are straight lines.

(c) Henry has a bliss point.

(d) Henry's indifference curves are hyperbolas.

(e) None of the above.

Topic: Utility

Difficulty: 1

% Correct Responses: 92

Discrimination Index: 37

Correct Answer: D

4.14 Josephine's utility function is $U(x,y) = y + 5x^{.5}$. She has one unit of x and two units of y. If her consumption of x is reduced to zero, how much y must she have in order to be exactly as well off as before?

(a) 14 units.

(b) 9 units.

(c) 11 units.

(d) 7 units.

(e) None of the above.

Topic: Utility   Difficulty: 2
% Correct Responses: 10   Discrimination Index: 0
Correct Answer: C

4.15   Jim's utility function is $U(x, y) = xy$. Jerry's utility function is $U(x, y) = 1,000xy + 2,000$. Tammy's utility function is $U(x, y) = xy(1 - xy)$. Oral's utility function is $-1/(10 + xy)$. Billy's utility function is $U(x, y) = x/y$. Pat's utility function is $U(x, y) = -xy$.

(a) No two of these people have the same preferences.

(b) They all have the same preferences except for Billy.

(c) Jim, Jerry, and Pat all have the same indifference curves, but Jerry and Oral are the only ones with the same preferences as Jim.

(d) Jim, Tammy, and Oral all have the same preferences.

(e) There is no truth in any of the above statements.

Topic: Utility   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 15
Correct Answer: A

4.16   Harmon's utility function is $U(x_1, x_2) = x_1 x_2$. His income is \$100, the price of good 2 is $p_2 = 4$. Good 1 is priced as follows. The first 15 units cost \$4 per unit and any additional units cost \$2 per unit. What consumption bundle does Harmon choose?

(a) $(12.5, 12.5)$

(b) $(25, 12.5)$

(c) $(12.5, 25)$

(d) $(15, 10)$

(e) None of the above.

Topic: Utility   Difficulty: 1
% Correct Responses: 61   Discrimination Index: 37
Correct Answer: E

4.17   Janet consumes x_1 and x_2 together in fixed proportions. She always consumes 2 units of x_1 for every unit x_2. One utility function that describes her preferences is:

(a) $U(x_1, x_2) = 2x_1 x_2$

(b) $U(x_1, x_2) = 2x_1 + x_2$

(c) $U(x_1, x_2) = x_1 + 2x_2$

(d) $U(x_1, x_2) = min\{2x_1, x_2\}$

(e) $U(x_1, x_2) = min\{x_1, 2x_2\}$

Topic: Utility Difficulty: 3
% Correct Responses: 14 Discrimination Index: 36
Correct Answer: C

4.18 Oswald Odd consumes only goods 1 and 2. His utility function is $U(x_1, x_2) = x_1 + x_2 + min\{x_1, x_2\}$. Each of Oswald's indifference curves is:

(a) L-shaped.

(b) made up of 3 line segments with slopes -2, -1, and $-1/2$.

(c) made up of two line segments with slopes -2 and $-1/2$.

(d) is smooth and has no kinks.

(e) is a diamond-shaped figure consisting of 4 line segments.

Topic: Utility Difficulty: 3
% Correct Responses: 4 Discrimination Index: 0
Correct Answer: A

4.19 The absolute value of Mars' MRS at his current consumption bundle is greater than 3. (That is, $MU_1/MU_2 > 3$). Mars has convex preferences and is currently consuming positive amounts of both goods.

(a) Taking away some of Good 1 and giving Mars 3 units of Good 2 for each unit of Good 1 taken away will necessarily make him worse off.

(b) Taking away some Good 1 and giving Mars 3 units of Good 2 for each unit of Good 1 taken away will necessarily make him better off.

(c) Giving Mars some Good 1 and taking away 3 units of Good 2 for each unit of Good 1 he is given will necessarily make him worse off.

(d) Giving Mars some Good 1 and taking away 3 units of Good 2 for each unit of Good 1 he is given will necessarily make him better off.

(e) More than one of the above is true.

Topic: Utility   Difficulty: 3
% Correct Responses: 48   Discrimination Index: 84
Correct Answer: B

4.20   Isabella's utility function is $U(x,y) = 4min\{x,y\} + y$. If we draw her indifference curves with x on the horizontal axis and y on the vertical axis, these indifference curves are:

(a) L-shaped with kinks where $x = y$.

(b) made up of two line segments that meet where $x = y$. One of these line segments is horizontal and the other has slope -4.

(c) L-shaped with kinks where $x = 5y$.

(d) made up of two line segments that meet where $x = 5y$. One of these line segments is vertical and the other has slope -1.

(e) V-shaped with kinks where $x = 4y$.

Topic: Utility   Difficulty: 3
% Correct Responses: 48   Discrimination Index: 84
Correct Answer: B

4.21   Penelope's utility function is $U(x,y) = 2min\{x,y\} + y$. If we draw her indifference curves with x on the horizontal axis and y on the vertical axis, these indifference curves are:

(a) L-shaped with kinks where $x = y$.

(b) made up of two line segments that meet where $x = y$. One of these line segments is horizontal and the other has slope -2.

(c) L-shaped with kinks where $x = 3y$.

(d) made up of two line segments that meet where $x = 3y$. One of these line segments is vertical and the other has slope -1.

(e) V-shaped with kinks where $x = 2y$.

Topic: Utility   Difficulty: 1
% Correct Responses: 94   Discrimination Index: 20
Correct Answer: E

4.22   Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 32 apples and 8 bananas will also pass through the point where he consumes 4 apples and:

(a) 16 bananas.

(b) 32 bananas.

(c) 68 bananas.

(d) 72 bananas.

(e) 64 bananas.

Topic: Utility

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 20

Correct Answer: E

4.23 Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 10 apples and 35 bananas will also pass through the point where he consumes 2 apples and:

(a) 35 bananas.

(b) 70 bananas.

(c) 177 bananas.

(d) 182 bananas.

(e) 175 bananas.

Topic: Utility

Difficulty: 0

% Correct Responses: 95

Discrimination Index: 47

Correct Answer: B

4.24 Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 15 apples and 90 bananas, if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is:

(a) -15.

(b) -6.

(c) -12.

(d) $-1/6$.

(e) $-1/12$.

Topic: Utility

Difficulty: 0

% Correct Responses: 95

Discrimination Index: 47

Correct Answer: B

4.25 Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 25 apples and 100 bananas, if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is:

(a) -25.

(b) -4.

(c) -8.

(d) $-1/4$.

(e) $-1/8$.

Topic: Utility

% Correct Responses: 53

Correct Answer: C

Difficulty: 2

Discrimination Index: 49

4.26   Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose is initially consuming 64 units of nuts and 10 units of berries, then what is the largest number of berries that he would be willing to give up in return for an additional 17 units of nuts.

(a) 9

(b) 19

(c) 4

(d) 2

(e) 1

Topic: Utility

% Correct Responses: 53

Correct Answer: C

Difficulty: 2

Discrimination Index: 49

4.27   Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose is initially consuming 4 units of nuts and 18 units of berries, then what is the largest number of berries that he would be willing to give up in return for an additional 32 units of nuts.

(a) 6

(b) 24

(c) 16

(d) 8

(e) 4

Topic: Utility

% Correct Responses: 60

Correct Answer: C

Difficulty: 2

Discrimination Index: 52

4.28   Joe Bob's cousin Leonard consumes goods 1 and 2. Leonard thinks that 2 units of good 1 is always a perfect substitute for 3 units of good 2. Which of the following utility functions is the only one that would NOT represent Leonard's preferences?

(a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1000$.

(b) $U(x_1, x_2) = 9x_1^2 + 12x_1 x_2 + 4x_2^2$.

(c) $U(x_1, x_2) = Min\{3x_1, 2x_2\}$.

(d) $U(x_1, x_2) = 30x_1 + 20x_2 - 10,000$.

(e) More than one of the above does NOT represent Leonard's preferences.

Topic: Utility   Difficulty: 2
% Correct Responses: 60   Discrimination Index: 52
Correct Answer: C

4.29   Joe Bob's cousin Tim consumes goods 1 and 2. Tim thinks that 4 units of good 1 is always a perfect substitute for 2 units of good 2. Which of the following utility functions is the only one that would NOT represent Tim's preferences?

(a) $U(x_1, x_2) = 2x_1 + 4x_2 + 1000$.

(b) $U(x_1, x_2) = 4x_1^2 + 16x_1x_2 + 16x_2^2$.

(c) $U(x_1, x_2) = Min\{2x_1, 4x_2\}$.

(d) $U(x_1, x_2) = 20x_1 + 40x_2 - 10,000$.

(e) More than one of the above does NOT represent Tim's preferences.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

4.30   Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 3 *dollar(s)* per unit and the price of french fries is 4 dollars per unit, then Harry will:

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

4.31   Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 3 *dollar(s)* per unit and the price of french fries is 5 dollars per unit, then Harry will:

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

4.32   Phil Rupp's sister Ethel has the utility function $U(x,y) = min\{4x + y, 5y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves:

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 4x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 4y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 4y$.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

4.33   Phil Rupp's sister Ethel has the utility function $U(x,y) = min\{5x + y, 6y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves:

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 5x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 5y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 5y$.

4.1   Jim's utility function is $U(x,y) = xy$. Jerry's utility function is $U(x,y) = 1000xy + 2000$. Tammy's utility function is $U(x,y) = xy(1 - xy)$. Oral's utility function is $U(x,y) = -1/(10 + 2xy)$. Marjoe's utility function is $U(x,y) = x(y + 1000)$. Pat's utility function is $U(x,y) = .5xy - 10000$. Billy's utility function is $U(x,y) = x/y$. F Francis's utility function is $U(x,y) = -xy$. (a) Who has the same preferences as Jim? (b) Who had the same indifference curves as Jim? (c) Explain why the answers to (a) and (b) differ.

Answer: Jerry, Pat and Oral have the same preferences as Jim since their utility functions are monotonic transformations of Jim's. Jerry, Pat, Oral, Tammy, and Francis have the same indifference curves as Jim, but Tammy and Francis have different preferences. Francis' utility function is a decreasing transformation of Jim's, so he orders his indifference curves in the opposite way. Tammy's utility function is a transformation of Jim's but is sometimes increasing sometimes decreasing.

4.2   A consumer has a utility function of the form $U(x,y) = x^a + y^b$ where both a and b are non-negative. What additional restrictions on the values of the parameters a and b are imposed by each of the following assumptions? (i) Preferences are quasi-linear, convex, and x is a normal good. (ii) Preferences are homothetic. (iii) Preferences are homothetic and convex. (iv) Goods x and y are perfect substitutes.

Answer: (i) $a = 1$ and b is between 0 and 1. (ii) $a = b$. (iii) $a = b$ and a is between 0 and 1.(iv) $a = b = 1$.

4.3   Victor Finick likes to have the same amount of x as he has of y. His utility function is $U(x,y) = min\{2x - y, 2y - x\}$. a) Draw the indifference curve for Victor that passes through the bundle $(0,0)$ and the indifference curve that passes through $(4,4)$. (Hint: Each indifference curve is the intersection of two line segments.) b) If Victor has a bundle that he likes better than $(0,0)$ and his consumption of both goods is doubled, is Victor better off? c) Does Victor always prefer more of either good to less?

Answer: Victor's indifference curves are V-shaped. The one through the origin consists of the two rays $y = 2x$ and $x = 2y$. The one through $(2,2)$ has two rays going out from $(2,2) - -$ one with slope 1/2, and the other with slope 2. b) Yes c) No. If $x > y$, then an increase in x by itself makes him worse off and if $y > x$, an increase in y by itself makes him worse off.

Topic: Utility   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

4.4   Use separate graphs to sketch two indifference curves for people with each of the following utility functions: a) $U(x,y) = x + 2y$ b) $U(x,y) = Min\{x, 2y\}$ c) $U(x,y) = max\{x, 2y\}$

Answer: a) These are straight lines with slope $-1/2$. b) These are L-shaped. The corners lie along the locus $x = 2y$. c) A typical indifference curve consists of a horizontal line from the y axis to the locus $x = 2y$ and then a vertical line to the y axis from the point where the horiontal line met the line $x = 2y$.

Topic: Utility   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

4.5   Use separate graphs to draw indifference curves for each of the following utility functions: a) $U(x,y) = min\{2x + y, 2y + x\}$
b) $U(x,y) = max\{2x + y, 2y + x\}$. c) $U(x,y) = x + min\{x, y\}$. In which of these cases are preferences convex?

Answer: If you take a point on the line $x = y$ and draw two lines through it, one with a slope of $-1/2$ and the other with a slope of -2, the outer envelope of these lines will be an indifference curve for a) and the inner envelope will be an indifference curve for b). The indifference curves for c) passing through a point on the line $x = y$ consist of a line segment going down and to the right with slope -1 and a line segment going up and to the left with slope -2. Cases a) and c) display convex preferences and case b) does not.

Chapter 5

Topic: Choice
% Correct Responses: 78
Correct Answer: False

Difficulty: 1
Discrimination Index: 21

5.1   At a boundary optimum, a consumer's indifference curve must be tangent to her budget line.

Topic: Choice
% Correct Responses: 56
Correct Answer: False

Difficulty: 2
Discrimination Index: 20

5.2   Max Gross has the utility function $U(x,y) = max\{x,y\}$. If the price of x is the same as the price of y, Max will buy equal amounts of x and y.

Topic: Choice
% Correct Responses: 83
Correct Answer: False

Difficulty: 2
Discrimination Index: 21

5.3   If a consumer does not have convex preferences, then a point of tangency between her indifference curve and her budget line must be an optimal consumption point.

Topic: Choice
% Correct Responses: 46
Correct Answer: True

Difficulty: 2
Discrimination Index: 0

5.4   Sharon spends all of her income on peaches and strawberries. Peaches are a normal good for her. Her income increased by 20 percent and prices did not change. Her consumption of strawberries could not have increased by more than 20 percent.

Topic: Choice
% Correct Responses: 32
Correct Answer: False

Difficulty: 2
Discrimination Index: 46

5.5   Clara's utility function is $U(x,y) = (x+2)(y+1)$. If her consumption of both x and y are doubled, then her marginal rate of substitution between x and y remains constant.

Topic: Choice   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 11
Correct Answer: True

5.6   Charlie's utility function is $U(x,y) = xy^2$. His marginal rate of substitution between x and y does not change if you double the amount of both goods.

Topic: Choice   Difficulty: 2
% Correct Responses: 64   Discrimination Index: 54
Correct Answer: True

5.7   Ambrose's utility function is $U(x,y) = x + 4y^{1/2}$. The price of x is 1 and the price of y is 2. If his income rises from 100 to 150, his consumption of y increases by more than 10% but less than 50%.

Topic: Choice   Difficulty: 2
% Correct Responses: 91   Discrimination Index: 10
Correct Answer: False

5.8   Linus has utility function $U(x,y) = x + 2y$. If the price of x is 1 and the price of y is 1/2, then Linus must consume equal amounts of both goods in order to maximize his utility.

Topic: Choice   Difficulty: 3
% Correct Responses: 22   Discrimination Index: 3
Correct Answer: True

5.9   Mary Granola's utility function is $U(x,y) = min\{x + 2y, y + 2x\}$. Mary maximizes her utility subject to a budget constraint. If she chooses the bundle (5,6), then it must be that the price of x is exactly twice the price of y.

Topic: Choice   Difficulty: 2
% Correct Responses: 62   Discrimination Index: 41
Correct Answer: True

5.10   Millie's utility function is $U(x,y) = min\{x,y\}$. She maximizes her utility subject to a budget constraint. The price of x is the same as the price of y. If the price of x rises and the price of y and her income remain constant, then her consumption of y will certainly decrease.

Topic: Choice   Difficulty: 2
% Correct Responses: 49   Discrimination Index: 25
Correct Answer: True

5.11 Other things being equal, a lump sum tax is at least as good for a consumer as a sales tax that collects the same revenue from him.

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

5.12 If a consumer doesn't consume any snails, but does consume Big Macs, then his marginal rate of substitution between snails and Big Macs when his snail consumption is zero, must be equal to the ratio of the price of snails to the price of Big Macs.

Topic: Choice

Difficulty: 1

% Correct Responses: 13

Discrimination Index: 25

Correct Answer: B

5.1 Hans has 27 dollars, which he decides to spend on x and y. Commodity x costs \$16 per unit and commodity y costs \$10 per unit. He has the utility function $U(x, y) = 5x^2 + 2y^2$ and he can purchase fractional units of x and y.

(a) Hans will choose only x.

(b) Hans will choose only y.

(c) Hans will chose some of each commodity, but more y than x.

(d) Hans will choose some of each commodity, but more x than y.

(e) Hans will choose equal amounts of the two commodities.

Topic: Choice

Difficulty: 1

% Correct Responses: 13

Discrimination Index: 25

Correct Answer: B

5.2 Ollie has 40 dollars, which he decides to spend on x and y. Commodity x costs \$13 per unit and commodity y costs \$11 per unit. He has the utility function $U(x, y) = 6x^2 + 4y^2$ and he can purchase fractional units of x and y.

(a) Ollie will choose only x.

(b) Ollie will choose only y.

(c) Ollie will chose some of each commodity, but more y than x.

(d) Ollie will choose some of each commodity, but more x than y.

(e) Ollie will choose equal amounts of the two commodities.

Topic: Choice

Difficulty: 2

% Correct Responses: 86

Discrimination Index: 36

Correct Answer: E

5.3 Wanda Littlemore's utility function is $U(x, y) = x + 63y - 3y^2$. Her income is 184. If the price of x is 1 and the price of y is 33, how many units of good x will Wanda demand?

(a) 17

(b) 22

(c) 24

(d) 0

(e) 19

Topic: Choice   Difficulty: 2
% Correct Responses: 86   Discrimination Index: 36
Correct Answer: E

5.4   Wanda Littlemore's utility function is $U(x,y) = x + 72y - 3y^2$. Her income is 207. If the price of x is 1 and the price of y is 24, how many units of good x will Wanda demand?

(a) 13

(b) 18

(c) 23

(d) 0

(e) 15

Topic: Choice   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.5   Henri's utility function is $min\{x, 5y + 2z\}$. The price of x is 1, the price of y is 15, and the price of z is 7. Henri's income is 44. How many units of x does Henri demand?

(a) 9.78

(b) 11

(c) 5

(d) 3

(e) None of the above.

Topic: Choice   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.6   Matt's utility function is $min\{x, 4y + 5z\}$. The price of x is 1, the price of y is 4, and the price of z is 7. Matt's income is 8. How many units of x does Matt demand?

(a) 3.33

(b) 4

(c) 7

(d) 5

(e) None of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 32
Correct Answer: A

5.7   Peter consumes no commodities other than Miller Lite and Bud Light. His annual budget for these two commodities is described by the equation $5x + 30y = 300$ where x is sixpacks of Miller Lite and y is cases of Bud Light. Peter considers 2 cases of Bud Light to be perfect substitutes for 6 sixpacks of Miller Lite. Which of the following is true?

(a) He will consume 60 sixpacks of Miller Lite per year.

(b) He will consume 10 cases of Bud Light per year.

(c) He will consume 14 cases of Bud Light per year.

(d) He will consume 12 sixpacks of Miller Lite per year.

(e) He is indifferent between any two bundles that use up his entire income.

Topic: Choice   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 32
Correct Answer: A

5.8   Harold consumes no commodities other than Miller Lite and Bud Light. His annual budget for these two commodities is described by the equation $5x + 20y = 300$ where x is sixpacks of Miller Lite and y is cases of Bud Light. Harold considers 2 cases of Bud Light to be perfect substitutes for 10 sixpacks of Miller Lite. Which of the following is true?

(a) He will consume 60 sixpacks of Miller Lite per year.

(b) He will consume 15 cases of Bud Light per year.

(c) He will consume 19 cases of Bud Light per year.

(d) He will consume 12 sixpacks of Miller Lite per year.

(e) He is indifferent between any two bundles that use up his entire income.

Topic: Choice   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.9   Paul's utility function is $min\{x + 3y, 3x + y\}$. Simon's utility function is $min\{3x + 9y, 9x + 3y\}$. Paul and Simon have the same income and face the same prices. Which of the following is true?

(a) Paul and Simon will demand the same amount of good x.

(b) Paul will demand more y than Simon.

(c) Simon will demand more y than Paul.

(d) Each will prefer the other's consumption bundle to his own.

(e) None of the above.

Topic: Choice   Difficulty: 3
% Correct Responses: 30   Discrimination Index: 31
Correct Answer: C

5.10 Mary Granola consumes tomatoes and nectarines. Mary's indifference curves are kinky. When she is consuming more tomatoes than nectarines, she is just willing to trade 3 tomatoes for 1 nectarines. When she is consuming more nectarines than tomatoes, she is just willing to trade 4 nectarines for 1 tomatoes. Let P_1 be the price of nectarines and P_2 the price of tomatoes. Mary maximizes her utility subject to her budget constraint. Which is true? (Hint: Sketch one of her indifference curves.)

(a) When $P_1 > P_2$, she must consume only tomatoes.

(b) When $P_1 > P_2$, she must consume 3 times as many tomatoes as nectarines.

(c) When $P_1 > 3P_2$, she must consume only tomatoes.

(d) When $4P_1 > P_2$, she must consume only nectarines.

(e) She must consume equal amounts of both.

Topic: Choice   Difficulty: 3
% Correct Responses: 30   Discrimination Index: 31
Correct Answer: C

5.11 Mary Granola consumes oranges and apples. Mary's indifference curves are kinky. When she is consuming more oranges than apples, she is just willing to trade 5 oranges for 1 apples. When she is consuming more apples than oranges, she is just willing to trade 2 apples for 1 oranges. Let P_1 be the price of apples and P_2 the price of oranges. Mary maximizes her utility subject to her budget constraint. Which is true? (Hint: Sketch one of her indifference curves.)

(a) When $P_1 > P_2$, she must consume only oranges.

(b) When $P_1 > P_2$, she must consume 5 times as many oranges as apples.

(c) When $P_1 > 5P_2$, she must consume only oranges.

(d) When $2P_1 > P_2$, she must consume only apples.

(e) She must consume equal amounts of both.

Topic: Choice   Difficulty: 3
% Correct Responses: 28   Discrimination Index: 33
Correct Answer: C

5.12   Badger Madison consumes only beer and sausages. His income is \$100. Beer costs him \$.50 per can and sausages cost \$1 each. Where x is the number of cans of beer and y the number of sausages he consumes per week, Badger's utility function is $U(x, y) = -[(x - 50)^2 + (y - 40)^2]$.

(a) Badger must always be unhappy since whatever he consumes, his utility is negative.

(b) He has monotonic preferences.

(c) If his income increases, he won't change the commodity bundle that he buys.

(d) If the price of beer goes down, he will buy more beer.

(e) More than one of the above statements is true.

Topic: Choice   Difficulty: 3
% Correct Responses: 70   Discrimination Index: 58
Correct Answer: D

5.13   Janet consumes two commodities x and y. Her utility function is $min\{x + 2y, y + 2x\}$. She chooses to buy 10 units of good x and 20 units of good y. The price of good x is 1. Which of the following is true?

(a) Janet's income is 40.

(b) Janet's income is 50.

(c) Janet's income is 30.

(d) Janet's income is 20.

(e) There is not enough information in the problem to determine her income because we are not told the price of y.

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.14   Martha's utility function is $U(x, y) = min\{x + 2y, 2x + y\}$. George's utility function is $U(x, y) = min\{2x + 4y, 4x + 2y\}$. If George and Martha have the same income and face the same prices for the goods x and y :

(a) George and Martha will both demand the same amount of y.

(b) Martha will always prefer George's consumption bundle to her own.

(c) George will always prefer Martha's consumption bundle to his own.

(d) George will demand more x than Martha demands.

(e) None of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 48
Correct Answer: B

5.15   Ollie has a utility function $U(x, y) = (x + 2)(y + 3)$. The price of x is 1 and the price of y is 1. When he maximizes his utility subject to his budget constraint, he consumes positive amounts of both goods.

(a) Ollie consumes exactly as much x as y.

(b) Ollie consumes one more unit of x than he consumes of y.

(c) Ollie consumes one more unit of y than he consumes of x.

(d) Ollie consumes two more units of x than he consumes of y.

(e) None of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 48
Correct Answer: B

5.16   Maurice has a utility function $U(x, y) = (x+3)(y+2)$. The price of x is 1 and the price of y is 1. When he maximizes his utility subject to his budget constraint, he consumes positive amounts of both goods.

(a) Maurice consumes exactly as much x as y.

(b) Maurice consumes one more unit of x than he consumes of y.

(c) Maurice consumes one more unit of y than he consumes of x.

(d) Maurice consumes two more units of x than he consumes of y.

(e) None of the above.

Topic: Choice   Difficulty: 1
% Correct Responses: 19   Discrimination Index: 27
Correct Answer: A

5.17   Danny Featherweight is taking a tough course in law school. His prof agreed to give him a course grade of $max\{2x, 3y\}$ where x and y are the number of answers he gets right on the first and second midterms, respectively. Danny needs a course grade of 150 to pass. He finds that for the first midterm, for every A minutes of study, he will get one more answer right. For the second midterm, for every B minutes that he studies, he will get one more answer right. If he doesn't study at all, Danny will get nothing right on either exam. All Danny cares about is passing. He doesn't want to waste any time getting a higher grade than he needs.

(a) If $A/B < 2/3$, then Danny will not study for the second exam.

(b) The ratio of the time Danny spends on exam 1 to the time he spends on exam 2 will be $2A/3B$.

(c) The ratio of the time Danny spends on exam 2 to the time he spends on exam 1 will be $3A/2B$.

(d) If $A < B$, then Danny will not study for the first exam.

(e) Danny will spend $150/(2A + 3B)$ minutes studying for each exam.

Topic: Choice   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 40
Correct Answer: A

5.18   Isobel consumes positive quantities of both jam and and juice. The price of jam is 5 cents per unit and the price of juice is 10 cents per unit. Her marginal utility of jam is 10 and her marginal utility of juice is 5.

(a) Without changing her total expenditures, she could increase her utility by consuming more jam and less juice.

(b) Without changing her total expenditures, she could increase her utility by consuming more juice and less jam.

(c) Without changing her total expenditures on jam and juice, she could not increase her utility.

(d) We can't tell whether any of the other statements are true or false without knowing the quantities she consumes.

(e) She should spend more money on both jam and juice.

Topic: Choice

Difficulty: 2

% Correct Responses: 77

Discrimination Index: 0

Correct Answer: A

5.19   Harold's utility function is $U(x, y) = (x + 3)(y + 2)$. The price of x is 1. The price of y is 2. At all incomes for which Harold consumes positive amounts of both goods, he will consume:

(a) more than twice as much x as y.

(b) more than twice as much y as x.

(c) one more unit of x than of y.

(d) one more unit of y than of x.

(e) 2/3 as much y as x.

Topic: Choice

Difficulty: 3

% Correct Responses: 31

Discrimination Index: 14

Correct Answer: C

5.20   Jane's utility function is $U(x, y) = x + 2y$, where x is her consumption of good X and y is her consumption of good Y. Her income is 2. The price of Y is 2. The cost per unit of X depends on how many units she buys. The total cost of x units of X is the square root of x.

(a) The bundle $(1/4, 3/4)$ is Jane's utility maximizing choice, given her budget.

(b) The bundle $(1, 1/2)$ is Jane's utility maximizing choice, given her budget.

(c) Given her budget, Jane would maximize her utility by spending all of her income on good x.

(d) Given her budget, Jane would maximize her utility by spending all of her income on good y.

(e) None of the above statements are true.

Topic: Choice

Difficulty: 2

% Correct Responses: 62

Discrimination Index: 43

Correct Answer: A

5.21   As you may know, Mungoites each have two left feet and one right foot. Their preferences for left and right shoes display perfect complementarity. Mungoites find shoes useful only in "trios" of two lefts and a right. The price of each type of shoe is $10 a shoe, and Mungoites consume nothing other than shoes. A Mungoite's Engel curve for right shoes has the equation:

(a) $R = m/30$

(b) $R = m - 10$.

(c) $R = 2m$.

(d) $R = 10m$.

(e) $R = m/10$.

Topic: Choice   Difficulty: 2
% Correct Responses: 43   Discrimination Index: 39
Correct Answer: C

5.22   Howard has the utility function $U(x, y) = x - (1/y)$. His income is \$30.

(a) Howard does not like good y.

(b) Howard has a bliss point.

(c) If the price of x is \$4 and the price of y is \$1, Howard will buy 2 units of y.

(d) Howard will buy good y only if it is cheaper than good x.

(e) None of the above.

Topic: Choice   Difficulty: 3
% Correct Responses: 37   Discrimination Index: 31
Correct Answer: A

5.23   Minnie Applesauce is shopping for a summer lake cottage. Minnie hates mosquito bites, but the cheapest lake cottages have the most mosquitos. The price of a lake cabin is related to b, the number of mosquito bites you can expect per hour, according to the formula $p = \$20,000 - 100b$. Minnie's utility function is $u = x - 5b^2$ where x is her expenditure on all goods other than her lake cabin. If Minnie makes her best choice of lake cabin, how many mosquito bites per hour will she get?

(a) 10

(b) 5

(c) 20

(d) 25

(e) None of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 63   Discrimination Index: 75
Correct Answer: B

5.24   The prices of goods x and y are each \$1. Jane has \$20 to spend and is considering choosing 10 units of x and 10 units of y. Jane has nice convex preferences and more of both goods is better for her. Where x is drawn on the horizontal axis and y is drawn on the vertical axis, the slope of her indifference curve at the bundle $(10, 10)$ is -2. From these facts we can conclude that:

(a) The bundle $(10, 10)$ is the best she can afford.

(b) She would be better off consuming more of good x and less of good y.

(c) She would be better off consuming more of good y and less of good x.

(d) She must dislike one of the goods.

(e) More than one of the above is true.

Topic: Choice

Difficulty: 1

% Correct Responses: 56

Discrimination Index: 43

Correct Answer: C

5.25 Which of the following could possibly change a rational consumer's demand?

(a) Changing his utility function by cubing it.

(b) Changing his utility function by multiplying it by 3 and subtracting 100 from it.

(c) Increasing all prices and his income by \$3.

(d) Multiplying all prices and income by 2.2.

(e) More than one of the above.

Topic: Choice

Difficulty: 1

% Correct Responses: 68

Discrimination Index: 23

Correct Answer: C

5.26 Coke and Pepsi are perfect substitutes for Mr. Drinker and the slope of his indifference curves is minus 1. One day he bought 2 cans of Coke and 20 cans of Pepsi. (The cans of both drinks are the same size.)

(a) Coke is less expensive than Pepsi.

(b) Coke is more expensive than Pepsi.

(c) Coke and Pepsi cost the same.

(d) Mr. Drinker prefers Pepsi to Coke.

(e) None of the above.

Topic: Choice

Difficulty: 1

% Correct Responses: 68

Discrimination Index: 30

Correct Answer: C

5.27 Ed and Al both consume only bread and cheese. Both of them always choose to have some bread and some cheese, and both have strictly convex preferences. However, Ed likes to have a great deal of bread with a little cheese and Al likes lots of cheese with a little bread. Both face the same prices for both goods and have chosen bundles to maximize their utilities subject to their budgets. Which of the following statements is true?

(a) Al's marginal rate of substitution is larger in absolute value than Ed's.

(b) Ed's marginal rate of substitution is larger in absolute value than Al's.

(c) Their marginal rates of substitution are the same.

(d) Who has the larger marginal rate of substitution depends on income levels.

(e) There is not enough information for us to be able to tell who has the larger marginal rate of substitution.

Topic: Choice   Difficulty: 2
% Correct Responses: 35   Discrimination Index: 5
Correct Answer: C

5.28   If his wage rate increases, then a utility maximizing consumer will necessarily:

(a) increase (or leave constant) his labor supply.

(b) increase (or leave constant) his labor supply if leisure is a normal good, but otherwise might reduce his labor supply.

(c) increase (or leave constant) his labor supply if leisure is an inferior good, but otherwise might reduce his labor supply.

(d) decrease (or leave constant) his labor supply.

(e) none of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 22   Discrimination Index: 29
Correct Answer: E

5.29   Angela consumes only two goods, x and y. Her income doubles and the prices of the two goods remain unchanged. Assuming that she is a utility maximizer and likes both goods, which of the following statements is necessarily true?

(a) She will consume more of both goods.

(b) The ratio of her consumption of x to y remains constant.

(c) Her utility doubles.

(d) If her preferences are convex, she must consume more x.

(e) None of the above.

Topic: Choice   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 22
Correct Answer: B

5.30   Arthur's preferences are defined over two basic food groups, beer, x_1, and ice cream, x_2. His utility function is $u(x_1, x_2) = x_1^2 + x_2$. He has \$100 to spend, and each of these goods costs \$10 per quart. Which of the following statements is true?

(a) Arthur will consume 5 quarts of ice cream and 5 quarts of beer.

(b) Arthur will find that 10 quarts of beer and no ice cream is the best bundle.

(c) Arthur will find that 10 quarts of ice cream and no beer is the best bundle.

(d) Arthur is indifferent between any two points on the line that connects $(5,5)$ and $(10,10)$.

(e) Arthur will spend 2/3 of his income on beer and 1/3 of his income on ice cream.

Topic: Choice

Difficulty: 3

% Correct Responses: 19

Discrimination Index: 20

Correct Answer: C

5.31 Andrew's utility function is $U(x_1, x_2) = 4x_1^2 + x_2$. Andrew's income is \$32, the price of good 1 is \$16 per unit, and the price of good 2 is \$1 per unit. What happens if Andrew's income increases to \$80 and prices do not change? (Hint: Does he have convex preferences?)

(a) He will consume 48 more units of good 2 and the same amount of good 1 as before.

(b) He will increase his consumption of both goods.

(c) He will reduce his consumption of good 2.

(d) He will consume the same amount of good 2 as before and 3 more units of good 1 than he consumed before.

(e) None of the above.

Topic: Choice

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

5.32 Lorenzo lives on x and y alone. His utility function is $U(x, y) = min\{3x + 4y, 7y\}$. The prices of both goods are positive. Which of the following statements is necessarily true?

(a) He will never buy more x than y.

(b) He will buy equal amounts of the two goods.

(c) He will always buy more y than x.

(d) He will always buy more x than y.

(e) More than one of the above.

Topic: Choice

Difficulty: 2

% Correct Responses: 63

Discrimination Index: 65

Correct Answer: A

5.33 Mort's utility function is $U(x_1, x_2) = x_1 x_2$. His income is \$100; the price of good 2 is \$10. Good 1 is priced as follows. The first 6 units cost \$10 per unit and any additional units cost \$5 per unit. What consumption bundle does Mort choose?

(a) $(5, 5)$

(b) $(7, 3.5)$

(c) $(9, 3)$

(d) $(6, 4)$

(e) None of the above.

5.34   Clara's utility function is $U(X, Y) = (X + 2)(Y + 1)$. If her marginal rate of substitution is -4 and she is consuming 14 units of Good X, how many units of Good Y must she be consuming?

(a) 30

(b) 68

(c) 18

(d) 63

(e) 9

5.35   Clara's utility function is $U(X, Y) = (X + 2)(Y + 1)$. If her marginal rate of substitution is -2 and she is consuming 9 units of Good X, how many units of Good Y must she be consuming?

(a) 18

(b) 26

(c) 11

(d) 21

(e) 5

Topic: Choice   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 26
Correct Answer: D

5.36

Elmer's utility function is $U(x, y) = min\{x, y^2\}$. If the price of x is 25 and the price of y is 15, and if Elmer chooses to consume 7 units of Y, what must his income be?

(a) 2,660

(b) 280

(c) 1,430

(d) 1,330

(e) There is not enough information to determine his income.

Topic: Choice   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 26
Correct Answer: D

5.37

Elmer's utility function is $U(x, y) = min\{x, y^2\}$. If the price of x is 20 and the price of y is 20, and if Elmer chooses to consume 2 units of Y, what must his income be?

(a) 240

(b) 80

(c) 220

(d) 120

(e) There is not enough information to determine his income.

Topic: Choice   Difficulty: 3
% Correct Responses: 9   Discrimination Index: 21
Correct Answer: C

5.38   Justin consumes goods X and Y and has a utility function $U(x,y) = x^2 + y$. The price per unit of X is p_x and the price per unit of Y is p_y. He has enough money so that he can afford at least 1 unit of either good. When he chooses his best affordable bundle, it must necessarily be that:

(a) his budget line is tangent to the indifference curve passing through this bundle.

(b) he consumes only x.

(c) he consumes only y if p_x^2/p_y exceeds his income.

(d) he consumes some of each good if $p_x = p_y$.

(e) he consumes some of each good if $p_y = p_x/2$.

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.39   Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 120, how many units of bananas would he consume if he chose the bundle that maximized his utility subject to his budget constraint?

(a) 30

(b) 15

(c) 60

(d) 6

(e) 90

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.40   Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 200, how many units of bananas would he consume if he chose the bundle that maximized his utility subject to his budget constraint?

(a) 50

(b) 25

(c) 100

(d) 10

(e) 150

Topic: Choice

Difficulty: 0

% Correct Responses: 68

Discrimination Index: 30

Correct Answer: E

5.41 Charlie's utility function is $U(X_A, X_B) = X_A X_B$. If Charlie's income is 40, the price of apples is 4 and the price of bananas is 2, how many apples are there in the best bundle that Charlie can afford?

(a) 10

(b) 12

(c) 8

(d) 9

(e) 5

Topic: Choice

Difficulty: 0

% Correct Responses: 68

Discrimination Index: 30

Correct Answer: E

5.42 Charlie's utility function is $U(X_A, X_B) = X_A X_B$. If Charlie's income is 40, the price of apples is 4 and the price of bananas is 3, how many apples are there in the best bundle that Charlie can afford?

(a) 10

(b) 12

(c) 8

(d) 9

(e) 5

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

5.43 Ambrose's utility function is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 6, and his income is 264, how many units of NUTS will Ambrose choose.

(a) 20

(b) 144

(c) 288

(d) 147

(e) 72

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.44   Ambrose's utility function is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 6, and his income is 252, how many units of NUTS will Ambrose choose.

(a) 18

(b) 144

(c) 288

(d) 147

(e) 72

Topic: Choice   Difficulty: 2
% Correct Responses: 97   Discrimination Index: 4
Correct Answer: D

5.45   Our old friend, Edmund Stench, of Chapter 2 loves punk rock video tapes. He has no income and therefore has to accept garbage in his backyard in return for money. Each video tape cost \$2 and each sack of garbage that he accepts brings him \$1. His utility function is given by $U(c, g) = min\{2c, 20 - g\}$ where c is the number of video tapes and g is the number of sacks of garbage that he gets per month. Each month he will choose to accept:

(a) 20 sacks of garbage.

(b) no garbage.

(c) 5 sacks of garbage.

(d) 10 sacks of garbage.

(e) 15 sacks of garbage.

Topic: Choice

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

5.46 Joseph's utility function is given by $U_J = x_A + 2x_B$, where x_A denotes his consumption of apples and x_B his consumption of bananas. Clara's utility function is given by $U_C = 3x_A + 2x_B$. Joseph and Clara shop at the same grocery store.

(a) When we observe that Joseph leaves the store with some bananas, then we can deduce that Clara also buys some bananas.

(b) There exist prices of apples and bananas such that both consumers buy strictly positive amounts of both goods.

(c) When we observe that Joseph leaves the store with some apples and some bananas, then we can deduce that Clara also buys some apples and some bananas.

(d) When we observe that Joseph leaves the store with some apples, then we can deduce that Clara also buys some apples.

(e) Apples and bananas are perfect complements for Joseph.

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

5.47 If a consumer maximizes her preferences subject to her budget by choosing a consumption bundle where the ratio of her marginal utilities of shelter and food, MUS/MUF, is greater than the ratio of the prices of shelter and food, p_S/p_F, then she

(a) must be consuming food but no shelter.

(b) must be consuming shelter but no food.

(c) must be consuming both food and shelter.

(d) must not be spending all of her income.

(e) must believe that shelter is a "bad".

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

5.1   Max has the utility function $U(x, y) = x(y + 1)$. The price of x is 2 and the price of y is 1. Income is 10. How much x does Max demand?. How much y? If his income doubles and prices stay unchanged, will Max's demand for both goods double?

Answer: To set his MRS equal to the price ratio, Max sets $(y + 1)/x = 2$. His budget constraint is $2x + y = 10$. Solve these two equations to find that $x = 11/4$ and $y = 9/2$. If his income doubles and prices stay unchanged, his demand for both goods does not double. A quick way to see this is to note that if quantities of both goods doubled, the MRS would not stay the same and hence would not equal the price ratio, which has stayed constant.

Topic: Choice   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

5.2   Casper consumes cocoa and cheese. Cocoa is sold in an unusual way. There is only one supplier, and the more cocoa you buy from him, the higher the price you have to pay per unit. In fact y units of cocoa will cost Casper y^2 dollars. Cheese is sold in the usual way at a price of 2 dollars per unit. Casper's income is 20 dollars and his utility function is $U(x, y) = x + 2y$ where x is his consumption of cheese and y is his consumption of cocoa. a) Sketch Casper's budget set and shade it in. b) Sketch some of his indifference curves and label the point that he chooses. c) Calculate the amount of cheese and the amount of cocoa that Casper demands at these prices and this income.

Answer: This problem is different from those in the text and is designed to see whether the student can use the tools presented there in a creative way. The budget set is a convex set and the solution is a point of tangency. Casper demands 2 units of cocoa and 16 units of cheese.

Topic: Choice   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

5.3   Is the following statement true or false? Briefly explain your answer. "A utility maximizer will always choose a bundle at which his indifference curve is tangent to his budget line."

Answer: False. At a corner solution the indifference curve need not be tangent to the budget line.

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

5.4 Max has a utility function $U(x, y) = 2xy + 1$. The prices of x and y are both $1 and Max has an income of $20. a) How much of each good will he demand? *b*) A tax is placed on x so that x now costs Max $2 while his income and the price of y stay the same. How much good x does he now demand? *c*) Would Max be as well off as he was before the tax if when the tax was imposed, his income rose by an amount equal to $1 times the answer to part *b*?

Answer: a) 10 x and 10 y. *b*)5x *c*) No.

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

5.5 Harold consumes chardonnay and quiche. His utility function is $U(c, q) = min\{c, q^2\}$. Draw a diagram showing three or four of Harold's indifference curves. If the price of chardonnay is 10 and the price of quiche is 3 and if Harold is consuming 4 units of quiche, how many units of chardonnay is he consuming?

Answer: The diagram has fixed-coefficients indifference curves, but their corners line up along the locus $c = q^2$ rather than along a straight line. 16 units of chardonnay.

Topic: Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

5.6 Les has the utility function $U(x, y) = (x + 1)(y + 4)$. The price of y is 1. Les spends all of his income to buy 6 units of y and no x. From these facts we can tell that the price of x must be at least how much? Explain your answer and draw a diagram to illustrate it.

Answer: Price of x must be at least 10. His marginal rate of substitution at the bundle $(6, 0)$ is 10. If the price of x is 10 or greater, he will choose that corner.

Chapter 6

Topic: Demand   Difficulty: 1
% Correct Responses: 81   Discrimination Index: 15
Correct Answer: True

6.1 If preferences are quasilinear, then for very high incomes the income offer curve is a straight line parallel to one of the axes.

Topic: Demand   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 40
Correct Answer: False

6.2 In economic theory, the demand for a good must depend only on income and its own price and not on the prices of other goods.

Topic: Demand   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 11
Correct Answer: True

6.3 If two goods are substitutes, then an increase in the price of one of them will increase the demand for the other.

Topic: Demand   Difficulty: 2
% Correct Responses: 48   Discrimination Index: 8
Correct Answer: True

6.4 If consumers spend all of their income, it is impossible for all goods to be inferior goods.

Topic: Demand   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 8
Correct Answer: False

6.5 An Engel curve is a demand curve with the vertical and horizontal axes reversed.

Topic: Demand   Difficulty: 2
% Correct Responses: 92   Discrimination Index: 14
Correct Answer: False

6.6 If the demand curve is a downward-sloping straight line, then the price elasticity of demand is constant all along the demand curve.

Topic: Elasticity
% Correct Responses: 0
Correct Answer: True

Difficulty: 2
Discrimination Index: 0

6.7 If the price elasticity of demand for a good is -1, then doubling the price of that good will leave total expenditures on that good unchanged.

Topic: Demand
% Correct Responses: 82
Correct Answer: False

Difficulty: 2
Discrimination Index: 33

6.8 If preferences are homothetic, then the slope of the Engel curve for any good will decrease as income increases.

Topic: Elasticity
% Correct Responses: 0
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

6.9 A good is a luxury good if the income elasticity of demand for it is greater than 1.

Topic: Demand
% Correct Responses: 68
Correct Answer: True

Difficulty: 2
Discrimination Index: 31

6.10 Prudence was maximizing her utility subject to her budget constraint. Then prices changed. After the price change she is better off. Therefore the new bundle costs more at the old prices than the old bundle did.

Topic: Demand
% Correct Responses: 67
Correct Answer: False

Difficulty: 1
Discrimination Index: 2

6.11 If income is doubled and all prices are doubled, then the demand for luxury goods will more than double.

Topic: Demand
% Correct Responses: 86
Correct Answer: True

Difficulty: 1
Discrimination Index: 21

6.12 If preferences are homothetic and all prices double while income remains constant, then demand for all goods is halved.

Topic: Demand   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

6.13   An inferior good is less durable than a normal good.

Topic: Demand   Difficulty: 2
% Correct Responses: 1   Discrimination Index: 1
Correct Answer: True

6.14   It is impossible for a person to have a demand curve that slopes upward at all prices.

Topic: Demand   Difficulty: 2
% Correct Responses: 52   Discrimination Index: 34
Correct Answer: False

6.15   Donald's utility function is $U(x, y) = x + y^{1/2}$. Currently he is buying some of both goods. If his income rises and prices don't change, he will buy more of both goods.

Topic: Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

6.16   Angela's utility function is $x + y^{1/2}$. It is possible that if her income is very high, an increase in income will not make her spend more on y.

Topic: Demand   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 0
Correct Answer: False

6.17   When other variables are held fixed, the demand for a Giffen good rises when income is increased.

Topic: Demand   Difficulty: 1
% Correct Responses: 90   Discrimination Index: 5
Correct Answer: False

6.18   A rational consumer spends her entire income. If her income doubles and prices do not change, then she will necessarily choose to consume twice as much of every good as she did before.

Topic: Demand   Difficulty: 2
% Correct Responses: 84   Discrimination Index: 21
Correct Answer: False

6.19   A consumer has a utility function given by $U = min\{x_1, 2x_2\}$. If Good 2 has a price of zero, the consumer will always prefer more of Good 2 to less.

Topic: Demand   Difficulty: 2
% Correct Responses: 61   Discrimination Index: 42
Correct Answer: False

6.20   A consumer has the utility function $U(x,y) = min\{x, 2y\}$. If the price of good x is zero and the price of good y is p, then the consumer's demand function for good y is $m/2p$.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

6.21   Fred has a Cobb-Douglas utility function with exponents that sum to 1. Sally consumes the same two goods, but the two goods are perfect substitutes for her. Despite these differences, Fred and Sally have the same price offer curves.

Topic: Demand   Difficulty: 0
% Correct Responses: 53   Discrimination Index: 16
Correct Answer: False

6.22   Darlene's utility function is $U(x,y,z) = x^3y^3z$. If her income doubles and prices remain unchanged, her demand for good Y will more than double.

Topic: Demand   Difficulty: 0
% Correct Responses: 53   Discrimination Index: 16
Correct Answer: False

6.23   Darlene's utility function is $U(x,y,z) = x^4y^7z$. If her income doubles and prices remain unchanged, her demand for good Y will more than double.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

6.24   Quasilinear preferences are homothetic when the optimal amount of one of the goods is not affordable.

Topic: Demand   Difficulty: 3
% Correct Responses: 33   Discrimination Index: 42
Correct Answer: A

6.1   Daisy received a tape recorder as a birthday gift and is not able to return it. Her utility function is $U(x, y, z) = x + z^{1/2}f(y)$ where z is the number of tapes she buys, y is the number of tape recorders she has and x is the amount of money she has left to spend. $f(y) = 0$ if $y < 1$ and $f(y) = 8$ if y is 1 or greater. The price of tapes is 2 and she can easily afford to buy dozens of tapes. How many tapes will she buy?

(a) 4

(b) 6

(c) 2

(d) 8

(e) We need to know the price of tape recorders to solve this problem.

Topic: Demand   Difficulty: 3
% Correct Responses: 33   Discrimination Index: 42
Correct Answer: A

6.2   Daisy received a tape recorder as a birthday gift and is not able to return it. Her utility function is $U(x, y, z) = x + z^{1/2}f(y)$ where z is the number of tapes she buys, y is the number of tape recorders she has and x is the amount of money she has left to spend. $f(y) = 0$ if $y < 1$ and $f(y) = 32$ if y is 1 or greater. The price of tapes is 4 and she can easily afford to buy dozens of tapes. How many tapes will she buy?

(a) 16

(b) 18

(c) 14

(d) 20

(e) We need to know the price of tape recorders to solve this problem.

Topic: Demand Difficulty: 2
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: B

6.3 Mickey is considering buying a tape recorder. His utility function is $U(x, y, z) = x + f(y)z^{.5}$ where x is the amount of money he spends on other goods, y is the number of tape recorders he buys, and z is the number of tapes he buys. Let $f(y) = 0$ if $y < 1$ and $f(y) = 8$ if y is greater than or equal to 1. The price of tape recorders is 20, the price of tapes is 1, and he can easily afford to buy a tape recorder and and several tapes. Will he buy a tape recorder?

(a) He should buy a tape recorder at these prices, but if tapes were any more expensive, it would not pay to buy one.

(b) He should not buy a tape recorder.

(c) He is indifferent to buying a tape recorder or not.

(d) There is not enough information here for us to be able to tell.

(e) Even if the price of tapes doubled, he should still buy a tape recorder.

Topic: Demand Difficulty: 1
% Correct Responses: 86 Discrimination Index: 20
Correct Answer: D

6.4 Walt consumes strawberries and cream but only in the fixed ratio of three boxes of strawberries to two cartons of cream. At any other ratio, the excess goods are totally useless to him. The cost of a box of strawberries is 10 and the cost of a carton of cream is 10. Walt's income is 200. Which of the following is true?

(a) Walt demands 10 cartons of cream.

(b) Walt demands 10 boxes of strawberries.

(c) Walt considers strawberries and cartons of cream to be perfect substitutes.

(d) Walt demands 12 boxes of strawberries.

(e) None of the above.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

6.5   Mike consumes two commodities, x and y, and his utility function is $min\{x + 2y, y + 2x\}$. He chooses to buy 8 units of good x and 16 units of good y. The price of good y is 0.50. What is his income?

(a) 32

(b) 40

(c) 24

(d) 16

(e) Mike's income cannot be found unless the price of x is given too.

Topic: Demand   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 31
Correct Answer: D

6.6

Georgina consumes only grapefruits and pineapples. Her utility function is $U(x, y) = x^2 y^8$, where x is the number of grapefruits consumed and y is the number of pineapples consumed. Georgina's income is 105, and the prices of grapefruits and pineapples are 1 and 3, respectively. How many grapefruits will she consume?

(a) 10.50

(b) 7

(c) 63

(d) 21

(e) None of the above.

Topic: Demand

% Correct Responses: 68

Correct Answer: D

Difficulty: 2

Discrimination Index: 31

6.7

Fanny consumes only grapefruits and grapes. Her utility function is $U(x, y) = x^3 y^6$, where x is the number of grapefruits consumed and y is the number of grapes consumed. Fanny's income is 48, and the prices of grapefruits and grapes are 1 and 3, respectively. How many grapefruits will she consume?

(a) 8

(b) 5.33

(c) 48

(d) 16

(e) None of the above.

Topic: Demand

% Correct Responses: 55

Correct Answer: B

Difficulty: 2

Discrimination Index: 45

6.8   For $m > p_2$, the demand functions for goods 1 and 2 are given by the equations, $x_1 = (m/p_2) - 1$ and $x_2 = p_1/p_2$, where m is income and p_1 and p_2 are prices. Let the horizontal axis represent the quantity of good 1. Let $p_1 = 1$ and $p_2 = 2$. Then for $m > 2$, the income offer curve is:

(a) a vertical line.

(b) a horizontal line.

(c) a straight line with slope 2.

(d) a straight line with a slope of 1/2.

(e) none of the above.

Topic: Demand   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 38
Correct Answer: E

6.9   Harry has ten dollars to spend on cans of Coke and Pepsi, which he regards as perfect substitutes, one-for-one. Pepsi costs $.50 a can and Coke costs $.60 a can. Harry has 20 coupons, each of which can be used to buy one can of Coke for 40 cents. Which of the following bundles will Harry buy?

(a) 20 cans of Pepsi and no Coke.

(b) 16 and two thirds cans of Coke and no Pepsi.

(c) 10 cans of Coke and 8 cans of Pepsi.

(d) 10 cans of Coke and 12 cans of Pepsi.

(e) None of the above.

Topic: Demand   Difficulty: 2
% Correct Responses: 67   Discrimination Index: 18
Correct Answer: D

6.10   Madonna buys only two goods. Her utility function is Cobb-Douglas. Her demand functions have which of the following properties?

(a) Her demand for one of the two goods does not depend on income.

(b) Her demand for neither good depends on income.

(c) Her demand for each of the goods depends on income and on the prices of both goods.

(d) Her demand for each of the two goods depends only on her income and on the price of that good itself.

(e) One of the goods is an inferior good and the other is a normal good.

Topic: Demand   Difficulty: 1
% Correct Responses: 33   Discrimination Index: 20
Correct Answer: D

6.11   Seppo consumes brandy and saunas. Neither is an inferior good. Seppo has a total of $30 a day and 6 hours a day to spend on brandy and saunas. Each brandy costs $2 and takes half an hour to consume. Each sauna costs $1 and takes 1 hour to consume. (It *is*, unfortunately, impossible to consume a brandy in the sauna.) Seppo suddenly inherits a lot of money and now has $50 a day to spend on brandy and saunas. Since Seppo is a rational consumer, he must have:

(a) increased brandy consumption only.

(b) increased sauna consumption only.

(c) increased consumption of both.

(d) consumed the same amounts of both goods as before.

(e) we can't tell since we are told nothing about his indifference curves.

Topic: Demand   Difficulty: 1
% Correct Responses: 49   Discrimination Index: 41
Correct Answer: E

6.12   Where x is the quantity of good X demanded, the inverse demand function for X :

(a) expresses $1/x$ as a function of prices and income.

(b) expresses demand for x as a function of $1/p_x$ and income where p_x is the price of x.

(c) expresses demand for x as a function of $1/p_x$ and $1/m$, where m is income.

(d) specifies $1/x$ as a function of $1/p_x$ and $1/m$, where m is income.

(e) None of the above.

Topic: Demand   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 7
Correct Answer: D

6.13   If there are two goods and if income doubles and the price of good 1 doubles, while the price of good 2 stays constant:

(a) a consumer's demand for good 1 will increase only if it is a Giffen good for her.

(b) a consumer's demand for good 2 will decrease only if it is a Giffen good for her.

(c) a consumer's demand for good 2 will increase only if it is an inferior good for her.

(d) a consumer's demand for good 2 will decrease only if it is an inferior good for her.

(e) None of the above.

6.14   Clarissa's utility function is $U(r, z) = z + 160r - r^2$ where r is the number of rose plants she has in her garden and z is the number of zinnias. She has 250 square feet to allocate to roses and zinnias. Roses each take up 4 square feet and zinnias each take up 1 square foot. She gets the plants for free from a generous friend. If she acquires another 100 square feet of land for her garden and her utility function remains unchanged she will:

(a) plant 100 more zinnias and no more roses.

(b) plant 25 more roses and no more zinnias.

(c) plant 38 more zinnias and some more roses.

(d) plant 20 more roses and 20 more zinnias.

(e) do none of the above.

6.15   Clarissa's utility function is $U(r, z) = z + 80r - r^2$ where r is the number of rose plants she has in her garden and z is the number of zinnias. She has 250 square feet to allocate to roses and zinnias. Roses each take up 4 square feet and zinnias each take up 1 square foot. She gets the plants for free from a generous friend. If she acquires another 100 square feet of land for her garden and her utility function remains unchanged she will:

(a) plant 100 more zinnias and no more roses.

(b) plant 25 more roses and no more zinnias.

(c) plant 99 more zinnias and some more roses.

(d) plant 20 more roses and 20 more zinnias.

(e) do none of the above.

6.16   Regardless of his income and regardless of prices, Smedley always spends 25% of his income on housing, 10% on clothing, 30% on food, 15% on transportation, and 20% on recreation. This behavior is consistent with the following:

(a) All goods are perfect substitutes.

(b) Smedley's demands for commodities do not change when their prices change.

(c) Smedley consumes all goods in fixed proportions.

(d) Smedley has a Cobb-Douglas utility function.

(e) More than one of the above.

Topic: Demand

Difficulty: 2

% Correct Responses: 73

Discrimination Index: 44

Correct Answer: A

6.17 Ms. Laura Mussel's preferences between golf and tennis are represented by $U(g,t) = gt$ where g is the number of rounds of golf and t is the number of tennis matches she plays per week. She has \$24 per week to spend on these sports. A round of golf and a tennis match each cost \$4. She used to maximize her utility subject to this budget. She decided to limit the time she spends on these sports to 16 hours a week. A round of golf takes 4 hours. A tennis match takes 2 hours. As a result of this additional constraint on her choice, you conclude that:

(a) she plays one less round of golf and one more tennis match each week.

(b) she plays more golf and less tennis, but can't say how much.

(c) her choices and her utility are unchanged.

(d) there is too little information to tell about her choices.

(e) she plays 2 less rounds of golf and 3 more rounds of tennis per week.

Topic: Demand

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 18

Correct Answer: A

6.18 Mary has homothetic preferences. When her income was \$1,000, she bought 40 books and 60 newspapers. When her income increased to \$1,500 and prices did not change, she bought:

(a) 60 books and 90 newspapers.

(b) 80 books and 120 newspapers.

(c) 60 books and 60 newspapers.

(d) 40 books and 120 newspapers.

(e) There is not enough information for us to determine what she would buy.

Topic: Demand

Difficulty: 2

% Correct Responses: 46

Discrimination Index: 54

Correct Answer: C

6.19 Katie Kwasi's utility function is $U(x_1, x_2) = 2(ln\ x_1) + x_2$. Given her current income and the current relative prices, she consumes 10 units of x_1 and 15 units of x_2. If her income doubles, while prices stay constant, how many units of x_1 will she consume after the change in income?

(a) 20

(b) 18

(c) 10

(d) 5

(e) There is not enough information to determine how much.

Topic: Demand

Difficulty: 2

% Correct Responses: 46

Discrimination Index: 54

Correct Answer: C

6.20 Katie Kwasi's utility function is $U(x_1, x_2) = 2(ln\ x_1) + x_2$. Given her current income and the current relative prices, she consumes 5 units of x_1 and 20 units of x_2. If her income doubles, while prices stay constant, how many units of x_1 will she consume after the change in income?

(a) 10

(b) 8

(c) 5

(d) 2.50

(e) There is not enough information to determine how much.

Topic: Demand

Difficulty: 2

% Correct Responses: 43

Discrimination Index: 23

Correct Answer: E

6.21 Will Feckless unexpectedly inherits $10,000 from a rich uncle. He is observed to consume fewer hamburgers than he used to. We conclude that:

(a) hamburgers are a Giffen good for Will.

(b) hamburgers are a normal good for Will.

(c) Will's Engel curve for hamburgers is vertical.

(d) Will's Engel curve for hamburgers is horizontal.

(e) Will's preferences are not homothetic.

Topic: Demand   Difficulty: 3
% Correct Responses: 11   Discrimination Index: 24
Correct Answer: B

6.22   Fred consumes pork chops and lamb chops and nothing else. When the price of pork chops rises with no change in his income or in the price of lamb chops, Fred buys fewer lamb chops and fewer pork chops. From this information we can definitely conclude that:

(a) pork chops are a normal good for Fred.

(b) lamb chops are a normal good for Fred.

(c) pork chops are an inferior good for Fred.

(d) lamb chops are an inferior good for Fred.

(e) Fred prefers pork chops to lamb chops.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

6.23   Cecil consumes x_1 and x_2 in fixed proportions. He consumes A units of good 1 with B units of good 2. To solve for his demand functionsfor goods 1 and 2:

(a) set $MU_1/MU_2 = p_1/p_2$ and solve for x_1.

(b) solve the following two equations in two unknowns: $Ax_1 = Bx_2$ and $p_1x_1 + p_2x_2 = m$.

(c) solve the following two equations in two unknowns: $Bx_1 = Ax_2$ and $p_1x_1 + p_2x_2 = m$.

(d) you only need to use the equation given by his budget line.

(e) use the fact that he spends all of his income on good 1 so long as it is the cheaper good.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

6.24   Wilma Q. has a utility function, $U(x_1, x_2) = x_1^2 + 1.5x_1x_2 + 30x_2$. The prices are $p_1 = 1$ and $p_2 = 1$. For incomes between 20 and 60, the Engel curve for good 2 is:

(a) upward-sloping.

(b) downward-sloping.

(c) vertical.

(d) upward-sloping for incomes between 20 and 40 and downward-sloping between 40 and 60.

(e) downward sloping for incomes between 20 and 40 and upward-sloping between 40 and 60.

Topic: Demand
% Correct Responses: 48
Correct Answer: C

Difficulty: 2
Discrimination Index: 16

6.25 Which of the following utility functions represent preferences of a consumer who does NOT have homothetic preferences?

(a) $U(x, y) = xy$.

(b) $U(x, y) = x + 2y$.

(c) $U(x, y) = x + y^{.5}$.

(d) $U(x, y) = min\{x, y\}$.

(e) More than one of the above.

Topic: Demand
% Correct Responses: 78
Correct Answer: A

Difficulty: 2
Discrimination Index: 19

6.26 Robert's utility function is $U(x, y) = min\{4x, 2x + y\}$. The price of x is \$3 and the price of y is \$1. Robert's income offer curve is:

(a) a ray from the origin with a slope of 2.

(b) a line parallel to the x axis.

(c) a line parallel to the y axis.

(d) the same as his Engel curve for x.

(e) none of the above.

Topic: Demand
% Correct Responses: 8
Correct Answer: B

Difficulty: 2
Discrimination Index: 35

6.27 Alfredo lives on apples and bananas only. His utility function is $U(a, b) = min\{a + b, 2b\}$. He maximizes his utility subject to his budget constraint and consumes the bundle $(a, b) = (4, 4)$. Which of the following statements must be true?

(a) $p_a > p_b$.

(b) p_a is less than or equal to p_b.

(c) $p_a = p_b$.

(d) $p_a = 2p_b$.

(e) None of the above.

Topic: Demand

Difficulty: 2

% Correct Responses: 80

Discrimination Index: 42

Correct Answer: E

6.28   Miss Muffet insists upon consuming 2 units of whey per unit of curds. If the price of curds is 5 and the price of whey is 3, then if Miss Muffet's income is M, her demand for curds will be:

(a) $M/5$.

(b) $3M/5$.

(c) $5c + 3w = M$.

(d) $5M$.

(e) $M/11$.

Topic: Demand

Difficulty: 2

% Correct Responses: 80

Discrimination Index: 42

Correct Answer: E

6.29   Miss Muffet insists upon consuming 2 units of whey per unit of curds. If the price of curds is 4 and the price of whey is 2, then if Miss Muffet's income is M, her demand for curds will be:

(a) $M/4$.

(b) $2M/4$.

(c) $4c + 2w = M$.

(d) $4M$.

(e) $M/8$.

Topic: Demand

Difficulty: 0

% Correct Responses: 88

Discrimination Index: 20

Correct Answer: A

6.30   If Charlie's utility function were $X_A^3 X_B$, if apples cost 90 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $3X_B = 9X_A$

(b) $X_B = X_A$

(c) $X_A = 3X_B$

(d) $X_B = 3X_A$

(e) $90X_A + 10X_B = M$

Topic: Demand   Difficulty: 0

% Correct Responses: 88   Discrimination Index: 20

Correct Answer: A

6.31   If Charlie's utility function were $X_A^5 X_B$, if apples cost 40 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $5X_B = 4X_A$

(b) $X_B = X_A$

(c) $X_A = 5X_B$

(d) $X_B = 5X_A$

(e) $40X_A + 10X_B = M$

Topic: Demand   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

6.32   If Charlie's utility function is $X_A^4 X_B$, if the price of apples is p_A, the price of bananas is p_B, and his income is m, then Charlie's demand for apples will be:

(a) $m/(2p_A)$

(b) $0.25p_A m$

(c) $m/(p_A + p_B)$

(d) $0.80m/p_A$

(e) $1.25p_B m/p_A$

Topic: Demand   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

6.33   If Charlie's utility function is $X_A^4 X_B$, if the price of apples is p_A, the price of bananas is p_B, and his income is m, then Charlie's demand for apples will be:

(a) $m/(2p_A)$

(b) $0.25p_A m$

(c) $m/(p_A + p_B)$

(d) $0.80m/p_A$

(e) $1.25p_B m/p_A$

Topic: Demand
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

6.34 Ambrose's brother Patrick has a utility function $U(x_1, x_2) = 16x_1^{1/2} + x_2$. His income is 82, the price of good 1 (nuts) is 2 and the price of good 2 (berries) is 1. How many units of nuts will Patrick demand?

(a) 26

(b) 12

(c) 14

(d) 16

(e) 30

Topic: Demand
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

6.35 Ambrose's brother Sebastian has a utility function $U(x_1, x_2) = 40x_1^{1/2} + x_2$. His income is 110, the price of good 1 (nuts) is 4 and the price of good 2 (berries) is 1. How many units of nuts will Sebastian demand?

(a) 35

(b) 21

(c) 23

(d) 25

(e) 48

Topic: Demand
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

6.36 Ambrose's brother Bartholomew has a utility function $U(x_1, x_2) = 40x_1^{1/2} + x_2$, where x_1 is his consumption of nuts and x_2 is his consumption of berries. His income is 115, the price of nuts is 5 and the price of berries is 1. How many units of berries will Bartholomew demand?

(a) 35

(b) 16

(c) 70

(d) 22

(e) There is not enough information to determine the answer.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.37   Ambrose's brother Patrick has a utility function $U(x_1, x_2) = 48x_1^{1/2} + x_2$, where x_1 is his consumption of nuts and x_2 is his consumption of berries. His income is 217, the price of nuts is 3 and the price of berries is 1. How many units of berries will Patrick demand?

(a) 25

(b) 64

(c) 50

(d) 70

(e) There is not enough information to determine the answer.

Topic: Demand   Difficulty: 0
% Correct Responses: 64   Discrimination Index: 29
Correct Answer: E

6.38   Miss Muffet insists on consuming 2 units of whey per unit of curds. If the price of curds is 3 and the price of whey is 3, then if Miss Muffett's income is m, her demand for curds will be:

(a) $m/3$

(b) $3m/3$

(c) $3C + 3W = m$

(d) $3m$

(e) $m/9$

Topic: Demand   Difficulty: 0
% Correct Responses: 64   Discrimination Index: 29
Correct Answer: E

6.39   Miss Muffet insists on consuming 2 units of whey per unit of curds. If the price of curds is 3 and the price of whey is 6, then if Miss Muffett's income is m, her demand for curds will be:

(a) $m/3$

(b) $6m/3$

(c) $3C + 6W = m$

(d) $3m$

(e) $m/15$

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

6.40 Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 10, and Casper's income is \$260, how many units of cocoa will he consume?

(a) 12

(b) 15

(c) 29

(d) 14

(e) 30

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

6.41 Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 6, and Casper's income is \$101, how many units of cocoa will he consume?

(a) 6

(b) 9

(c) 17

(d) 8

(e) 18

Topic: Demand

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

6.42 Let w be the number of whips and j the number of leather jackets. If Kinko's utility function is $U(x, y) = min\{7w, 4w + 12j\}$, then if the price of whips is \$20 and the price of leather jackets is \$40, Kinko will demand:

(a) 6 times as many whips as leather jackets.

(b) 5 times as many leather jackets as whips.

(c) 3 times as many whips as leather jackets.

(d) 4 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

6.43   Let w be the number of whips and j the number of leather jackets. If Kinko's utility function is $U(x, y) = min\{10w, 5w + 25j\}$, then if the price of whips is \$20 and the price of leather jackets is \$80, Kinko will demand:

(a) 7 times as many whips as leather jackets.

(b) 6 times as many leather jackets as whips.

(c) 4 times as many whips as leather jackets.

(d) 5 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

6.44   Between 1980 and 1990, a particular consumer's income increased by 25 percent, while the price of X and of "all other goods" both increased by 10 percent. It was observed that the consumer's consumption of X and of all other goods both increased by 15 percent. From these facts we can deduce that:

(a) the consumer did not regard X and "all other goods" as perfect complements.

(b) the consumer's preferences cannot be represented by a Cobb-Douglas utility function.

(c) the consumer's preferences can be represented by a Cobb-Douglas utility function.

(d) the consumer's preferences cannot be represented by a quasilinear utility function.

(e) more than one of the above options is true.

Topic: Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.45 John Parker Nosey works for the Internal Revenue Service. He is in charge of auditing income of self-employed people. In any year, a person divides his total income between consumption and saving. John cannot determine people's consumptions, but he is able to determine how much people have saved over the course of a year. From years of experience, he has learned that people act as if they are maximizing a utility function of the form $U(c, s) = 10,000 \ln c + s$, where c is the number of dollars worth of consumption in a year and s is the number of dollars saved. Which of the following is true?

(a) If someone saves at least \$1,000, then that person's income is at least \$11,000.

(b) If someone saves nothing, then that person must earn less than \$1,000.

(c) If someone saves exactly \$1,000, then that person's income must be greater than \$1,000 and less than \$10,000.

(d) If someone saves exactly \$10,000, then that person must earn exactly \$21,000.

(e) If someone saves more than \$1,000, then that person's income must be more than \$20,000.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

6.46 Carlos consumes only two goods, apples and bananas. His utility function is $U(a, b) = min\{a, b\}$. Before trade, his initial endowment is w_a apples and w_b bananas. After he trades to his optimal consumption point at these prices, the relative prices change. Carlos is allowed to make further trades if he wishes.

(a) Carlos will ddefinitely be better off after the price change.

(b) Carlos will be better off if the price of the good he was selling went up and worse off if the price of the good he was selling went down.

(c) Unless the price of both goods went down, we can not tell if Carlos is beter off or worse off.

(d) Carlos will be better off if the price of the good he was selling went down and worse off if the price of the good he was selling went up.

(e) Carlos' utility will not be affected by the change.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.47   Carlos consumes only two goods, apples and bananas. His utility function is $U(a,b) = a^3 b^2$. Before trade, his initial endowment is w_a apples and w_b bananas. After he trades to his optimal consumption point at these prices, the relative prices change. Carlos is allowed to make further trades if he wishes.

(a) Carlos will definitely be better off after the price change.

(b) Carlos will be better off if the price of the good he was selling went up and worse off if the price of the good he was selling went down.

(c) Unless the prices of both goods went down, we can not tell if Carlos is better off or worse off.

(d) Carlos will be better off if the price of the good he was selling went down and worse off if the price of the good he was selling went up.

(e) Carlos' utility will not be affected by the change.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

6.1   Is the following statement true or false? "If consumers spend their entire incomes, it is impossible for the income elasticity of demand for every good to be bigger than one." Write a brief, but convincing explanation of your answer.

Answer: True. If income elasticities of demand for all goods exceed 1, then a 1% increase in income would result in a more than 1% increase in expenditures for every good. Therefore total expenditures would rise by more than 1%. But this is impossible if the entire budget is spent both before and after the income increase.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

6.2   Wanda Lott's utility function is $U(x, y) = max\{2x, y\}$. Draw some of Wanda's indifference curves. If the price of x is 1, the price of y is p and her income is m, how much y does Wanda demand?

Answer: Wanda's indifference curves are rectangles that are twice as high as they are wide. If $p > .5$, Wanda demands no y. If $p < .5$, Wanda demands m/p units of y. If $p = .5$, Wanda is indifferent between her two best options which are buying m units of x and no y or buying $2m$ units of y and no x.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

6.3   Martha has the utility function $U = min\{4x, 2y\}$. Write down her demand function for x as a function of the variables m, p_x, and p_y, where m is income, p_x is the price of x and p_y is the price of y.

Answer: $x = m/(p_x + 2p_y)$.

Topic: Demand   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

6.4   Briefly explain in a sentence or two how you could tell: a) whether a good is a normal good or an inferior good. b) whether a good is a luxury or a necessity. c) whether two goods are complements or substitutes.

Answer: a) If prices are left constant and income rises, demand for a normal good will rise and demand for an inferior good will fall. b) If income rises, expenditure on it will rise more or less than proportionately depending on whether the good is a luxury or necessity respectively. c) Two goods are complements or substitutes depending on whether a rise in the price of one of them increases or decreases demand for the other.

Topic: Demand   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

6.5   Define each of the following: a) Inverse demand function. b) Engel curve.

Answer: The inverse demand function expresses for any quantity the price at which that quantity can be sold. It is simply the inverse function corresponding to the demand function. An Engel curve is the graph of the function that expresses quantity demanded as a function of income.

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

6.6   Ray Starr has the utility function $U(x, y) = y/(100 - x)$. a) Does Ray prefer more to less of both goods? b) Draw a diagram showing Ray's indifference curves corresponding to the utility levels $U = 1/2$, $U = 1$, and $U = 2$. c) How can you describe the set of indifference curves for Ray? d) If the price of x is 1 and the price of y is 1, find Ray's demand for x as a function of his income and draw a diagram showing his Engel curve for x.

Answer: a) Yes. b) These curves are straight lines with the equations $x/2 + y = 50$, $x + y = 100$, $2x + y = 200$. c) The indifference curve through any bundle is the straight line passing through that point and through the point $(100, 0)$. The set of all indifference curves is the *star*− shaped set of rays passing through the point $(100, 0)$ (to be more *precise*, the part of that set that is in the nonnegative quadrant). d) If Ray's income is less than 100, he buys y and no x. If his income is more than 100, he buys x and no y.

Topic: Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

6.7   With some services, e.g. checking accounts, phone service, or pay TV, a consumer is offered a choice of two or more payment plans. One can either pay a high "entry fee" and get a low price per unit of service or pay a low entry fee and a high price per unit of service. Suppose you have an income of $100. There are two plans. Plan A has an entry fee of $20 with a price of $2 per unit. Plan B has an entry fee of $40 with a price of $1 per unit for using the service. Let x be expenditure on other goods and y be consumption of the service. a) Write down the budget equation that you would have after you paid the entry fee for each of the two plans. b) If your utility function is xy, how much y would you choose in each case? c) Which plan would you prefer? Explain.

Answer: a) $x + 2y = 80$, $x + y = 60$. b)20, 30 c) Plan B. The utility of the bundle chosen with A is $20 * 40 = 800$ and the utility from the Plan B bundle is $30 * 30 = 900$.

Topic: Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

6.8 Marie's utility function is $U(x, y) = min\{3x + 2y, 2x + 5y\}$ where x is the number of units of sugar she consumes and y is the number of units of spice she consumes. She is currently consuming 12 units of sugar and 40 units of spice and she is spending all of her income. Draw a graph showing her indifference curve through this point. The price of spice is 1. In order for this to be her consumption bundle, what must be the price of sugar and what must her income be?

Answer: Her indifference curve is a broken line consisting of the outer envelope of the two lines $3x + 2y = 116$ and $2x + 5y = 116$. The point $(12, 40)$ is on the line $3x + 2y = 116$. The price of sugar is 1.5 and her income is 58.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

6.9 Murphy's utility function is $U(x, y) = min\{4x + y, 2x + 2y, x + 4y\}$. Murphy is consuming 12 units of x and 6 units of y. Draw the indifference curve through this point. At what points does this indifference curve have kinks? The price of good x is 1. What is the highest possible price for y? What is the lowest possible price for y?

Answer: The indifference curve is a broken line extending from $(36, 0)$ to $(12, 6)$ to $(6, 12)$ to $(0, 36)$. The price of y must be between 1 and 4.

Chapter 7

Topic: Revealed Preference
% Correct Responses: 95
Correct Answer: True

Difficulty: 2
Discrimination Index: 30

7.1 The strong axiom of revealed preference requires that if a consumer chooses x when he can afford y, and chooses y when he can afford z, then he will not choose z when he can afford x.

Topic: Revealed Preference
% Correct Responses: 78
Correct Answer: True

Difficulty: 1
Discrimination Index: 10

7.2 Rudolf Rational obeys the weak axiom of revealed preferences. His preferences don't change over time. One year he could afford bundle x but bought bundle y. If another year he buys bundle x, then he can't afford bundle y.

Topic: Revealed Preference
% Correct Responses: 46
Correct Answer: True

Difficulty: 2
Discrimination Index: 0

7.3 If a consumer maximizes a utility function subject to a budget constraint and has strictly convex preferences, then his behavior will necessarily satisfy the weak axiom of revealed preference and the strong axiom of revealed preference.

Topic: Revealed Preference
% Correct Responses: 73
Correct Answer: True

Difficulty: 1
Discrimination Index: 37

7.4 The Laspeyres index of prices in period 2 relative to period 1 tells us the ratio of the cost of buying the period 1 bundle at period 2 prices to the cost of buying the period 1 bundle at period 1 prices.

Topic: Revealed Preference
% Correct Responses: 83
Correct Answer: False

Difficulty: 1
Discrimination Index: 32

7.5 The Laspeyres price index differs from the Paasche price index because the Laspeyres index holds prices constant and varies quantities while the Paasche price index holds quantities constant and varies prices.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 36   Discrimination Index: 0
Correct Answer: False

7.6   Patience was maximizing her utility subject to her budget constraint. Prices changed and Patience was less well off than before. Therefore, at the old prices her new bundle must cost less than her old bundle.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

7.7   It follows from the weak axiom of revealed preference that if a consumer chooses x when he could afford y and chooses y when he could afford x, then his income must have changed between the two observations.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

7.8   The strong axiom of revealed preference says that if a consumer bought x when he could have afforded y and y when he could have afforded z, then he will buy x whenever he can afford z.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 8
Correct Answer: False

7.9   An increase in the price of an inferior good makes the people who consume that good better off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 53   Discrimination Index: 19
Correct Answer: True

7.10   Prudence was maximizing her utility subject to her budget constraint. Then prices changed. After the change, she is better off. Therefore the new bundle costs more at the old prices than the old bundle did.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 21
Correct Answer: False

7.11   The Laspeyres price index differs from the Paasche price index because the Paasche index holds prices constant and varies quantities, while the Laspeyres index holds quantities constant and varies prices.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 78   Discrimination Index: 20
Correct Answer: True

7.12   It is possible for a consumer to satisfy the weak axiom of revealed preference, but violate the strong axiom of revealed preference.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 83   Discrimination Index: 33
Correct Answer: True

7.13   For a consumer who has an allowance to spend and no endowment of goods, a decrease in the price of an inferior good consumed makes the consumer better off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

7.14   There are two goods, bananas and potatoes. The price of bananas increases and the price of potatoes decreases. If after the price change a consumer (whose preferences satisfy WARP) can still exactly afford her old consumption bundle, then she will consume at least as much potatoes as before, even if potatoes are a Giffen good.

Topic: Revealed Preference   Difficulty: 1

% Correct Responses: 52   Discrimination Index: 29

Correct Answer: E

7.1 Let A stand for the bundle $(7, 9)$, B stand for the bundle $(10, 5)$, and C stand for the bundle $(6, 6)$. When prices are $(2, 4)$, Betty chooses C. When prices are $(12, 3)$ she chooses A. Which of the following is true?

(a) A is directly revealed preferred to B.

(b) A is indirectly revealed preferred to B.

(c) C is directly revealed preferred to A.

(d) B is directly revealed preferred to A.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

7.2

Remember that the Laspeyres price index uses the old quantities for the weights. In 1971, good x cost 5 and good y cost 1. The current price of good x is 7 and the current price of good y is 6. In 1971 the consumption bundle was $(x, y) = (2, 4)$. The current consumption bundle is $(x, y) = (5, 3)$. The Laspeyres index of current prices relative to 1971 prices is closest to which of the following numbers?

(a) 3.79

(b) 2.71

(c) 0.26

(d) 1.89

(e) 1.26

7.3

Remember that the Laspeyres price index uses the old quantities for the weights. In 1971, good x cost 3 and good y cost 1. The current price of good x is 3 and the current price of good y is 5. In 1971 the consumption bundle was $(x, y) = (3, 5)$. The current consumption bundle is $(x, y) = (9, 4)$. The Laspeyres index of current prices relative to 1971 prices is closest to which of the following numbers?

(a) 3.36

(b) 2.43

(c) 0.30

(d) 1.52

(e) 1.30

7.4   Twenty years ago, Dmitri consumed bread which cost him 10 kopeks a loaf and potatoes which cost him 14 kopeks a sack. With his income of 208, he bought 11 loaves of bread and 7 sacks of potatoes. Today he has an income of 393. Bread now costs him 21 kopeks a loaf and potatoes cost him 16 kopeks a sack. Assuming his preferences haven't changed (*and* the sizes of loaves and sacks haven't changed), when was he better off?

(a) Twenty years ago

(b) Today

(c) He was equally well off in the two periods.

(d) From the information given here we are unable to tell.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 82   Discrimination Index: 30
Correct Answer: B

7.5   Twenty years ago, Dmitri consumed bread which cost him 10 kopeks a loaf and potatoes which cost him 13 kopeks a sack. With his income of 266, he bought 11 loaves of bread and 12 sacks of potatoes. Today he has an income of 510. Bread now costs him 20 kopeks a loaf and potatoes cost him 20 kopeks a sack. Assuming his preferences haven't changed (and the sizes of loaves and sacks haven't changed), when was he better off?

(a) Twenty years ago

(b) Today

(c) He was equally well off in the two periods.

(d) From the information given here we are unable to tell.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 81   Discrimination Index: 31
Correct Answer: A

7.6   At prices $(4, 12)$, Harry chooses the bundle $(9, 4)$. At the prices $(8, 4)$, Harry chooses the bundle $(2, 9)$. Is this behavior consistent with the weak axiom of revealed preference?

(a) Yes

(b) No

(c) It depends on his income.

(d) We would have to observe a third choice to be able to say.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 65   Discrimination Index: 45
Correct Answer: A

7.7   When prices are $(6, 3)$, Holly chooses the bundle $(9, 18)$ and when prices are $(1, 2)$, she chooses the bundle $(8, 14)$. Which of the following is true?

(a) The bundle $(9, 18)$ is revealed preferred to the bundle $(8, 14)$ and she does not violate WARP.

(b) She violates SARP but not WARP.

(c) The bundle $(8, 14)$ is revealed preferred to the bundle $(9, 18)$ and she does not violate WARP.

(d) She violates WARP.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 65   Discrimination Index: 45
Correct Answer: A

7.8   When prices are $(3, 1)$, Yolanda chooses the bundle $(9, 21)$ and when prices are $(1, 3)$, she chooses the bundle $(6, 14)$. Which of the following is true?

(a) The bundle $(9, 21)$ is revealed preferred to the bundle $(6, 14)$ and she does not violate WARP.

(b) She violates SARP but not WARP.

(c) The bundle $(6, 14)$ is revealed preferred to the bundle $(9, 21)$ and she does not violate WARP.

(d) She violates WARP.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.9   Maria consumes strawberries which cost her 10 pesos a box and bananas which cost her 9 pesos a bunch. With her income of 192 pesos she buys 12 boxes of strawberries and 8 bananas. Daphne, with an income of 170 shillings, consumes strawberries at a cost of 6 shillings each and bananas at a cost of 12 shillings each. Assuming their preferences are identical:

(a) Maria would prefer Daphne's consumption bundle to her own.

(b) Daphne would prefer Maria's consumption bundle to her own.

(c) they would both be indifferent between their own bundles and the other person$'s$ bundle.

(d) each prefers her own bundle to the other's.

(e) we can't make any of the above statements without more information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 73   Discrimination Index: 53
Correct Answer: B

7.10   In 1971, good x cost 5 and good y cost 1. They now cost 9 and 5 respectively. In 1971 the consumption bundle of x and y was 4 $x's$ and 5 $y's$. It is now 9 $x's$ and 7 $y's$. Calculate the Laspeyres index of current prices relative to 1971 prices rounded to one decimal place. (Remember the Laspeyres index uses the old quantities for weights.)

(a) .5

(b) 2.4

(c) 2.5

(d) 2.2

(e) None of the above.

Topic: Revealed Preference

Difficulty: 2

% Correct Responses: 29

Discrimination Index: 58

Correct Answer: B

7.11 Carlos has at one time or another lived in Argentina, Bolivia, and Colombia. He buys only two goods, x and y. In Argentina the prices were $(9, 3)$ and he consumed the bundle $(6, 7)$. In Bolivia he consumed $(9, 2)$. In Colombia he consumed the bundle $(6, 5)$ at the prices $(3, 3)$. Which of the following is true?

(a) The Argentine bundle is directly revealed preferred to the Bolivian bundle.

(b) The Argentine bundle is indirectly revealed preferred to the Bolivian bundle.

(c) The Colombian bundle is directly revealed preferred to the Argentine bundle.

(d) The Bolivian bundle is indirectly revealed preferred to the Argentine bundle.

(e) None of the above.

Topic: Revealed Preference

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

7.12 Prudence is careful to plan ahead. She is going to Paris next year to study. To protect herself from exchange rate fluctuations, she bought a futures contract for the number of francs she plans to spend next year, given current prices. When she arrives in Paris, she can cash in her contract for this many francs no matter what the exchange rate is. If the value of the franc relative to the dollar should happen to fall before she gets to Paris:

(a) she will be at least as well off and probably better off than if the exchange rate hadn't changed.

(b) she will be worse off than if exchange rates hadn't changed.

(c) she will be exactly as well off as if exchange rates hadn't changed.

(d) she might be better off or she might be worse off, depending on whether she planned to spend more or less than she does at home.

Topic: Revealed Preference Difficulty: 2
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: B

7.13 Jose consumes rare books which cost him 8 pesos each and pieces of antique furniture which cost him 10 pesos each. He spends his entire income to buy 9 rare books and 11 pieces of antique furniture. Nigel has the same preferences as Jose but faces different prices and has a different income. Nigel has an income of 162 pounds. He buys rare books at a cost of 4 pounds each and pieces of antique furniture at a cost of 11 pounds each.

(a) Nigel would prefer Jose's bundle to his own.

(b) Jose would prefer Nigel's bundle to his own.

(c) Neither would prefer the other's bundle to his own.

(d) Each prefers the other's bundle to his own.

(e) We can't tell whether either would prefer the other's bundle without knowing what quantities Nigel consumes.

Topic: Revealed Preference Difficulty: 2
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: D

7.14 Twenty years ago, Amanda consumed cans of motor oil which cost her 6 pesos each and gallons of gasoline which cost her 14 pesos each. With her income of 112 pesos, she bought 7 cans of motor oil and 5 gallons of gasoline. Today she has an income of 230 pesos. Cans of motor oil now cost 10 pesos each and gallons of gasoline now cost 32 pesos each. Assuming her preferences haven't changed, she:

(a) is definitely better off than she was 20 years ago.

(b) was definitely better off 20 years ago than she is now.

(c) is just as well off as she was 20 years ago.

(d) may be be either better or worse off now than 20 years ago. There is not enough information to determine which is the case.

(e) is behaving irrationally.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 0
Correct Answer: B

7.15   When prices are $(2,4)$, Ms. Consumer chooses the bundle $(7,9)$, and when prices are $(15,3)$, she chooses the bundle $(10,3)$. Is her behavior consistent with the weak axiom of revealed preference?

(a) Yes

(b) No

(c) We would have to observe a third choice to be able to say.

(d) We can't tell because we are not told her income in the two cases.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 35   Discrimination Index: 20
Correct Answer: B

7.16   Stan Ford currently spends \$100 a week on entertainment. A rich uncle offers him a choice between a \$50 a week allowance and the opportunity to buy all of his entertainment at half price. Stan has no kinks in his difference curves. Stan would:

(a) prefer the \$50 allowance.

(b) prefer the half-price subsidy.

(c) be indifferent between the allowance and the subsidy.

(d) prefer the subsidy if entertainment is a normal good and otherwise be indifferent.

(e) prefer the allowance if entertainment is an inferior good but otherwise prefer the subsidy.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 38
Correct Answer: A

7.17   When prices are $(2,10)$, Emil chooses the bundle $(1,6)$ and when prices are $(12,4)$, he chooses the bundle $(7,2)$. Which of the following is necessarily true?

(a) Emil violates WARP.

(b) Emil has kinked indifference curves.

(c) The bundle $(1,6)$ is revealed preferred to $(7,2)$, but $(7,2)$ is not revealed preferred to $(1,6)$.

(d) The bundle $(7,2)$ is revealed preferred to $(1,6)$, but $(1,6)$ is not revealed preferred to $(7,2)$.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

7.18   Desmond has lived in Australia, Belgium and Canada. His tastes never changed but his income and prices did. In Australia his commodity bundle was $(x_1, x_2) = (7, 8)$, in Belgium it was $(9, 4)$ and in Canada it was $(7, 5)$. Prices in Canada were $(p_1, p_2) = (3, 3)$ and in Australia prices were $(p_1, p_2) = (16, 4)$.

(a) Desmond's consumption in Australia is directly revealed prefered to his consumption in Belgium.

(b) His consumption in Australia is indirectly revealed preferred to his consumption in Belgium.

(c) His consumption in Australia is indirectly but not directly revealed preferred to his consumption in Canada.

(d) We can't tell if he was better off in Belgium or in Australia.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 1
% Correct Responses: 87   Discrimination Index: 35
Correct Answer: D

7.19   If all prices increase by 20%:

(a) the Paasche price index increases by more than 20% and the Laspeyres price index increases by less than 20%.

(b) the Laspeyres price index increases by more than 20% and the Paasche price index increases by less than 20%.

(c) both the Paasche price index and the Laspeyres price index increase by more than 20%.

(d) both the Paasche price index and the Laspeyres price index increase by exactly 20%.

(e) both the Paasche price index and the Laspeyres price index increase by less than 20%.

Topic: Revealed Preference

% Correct Responses: 26

Correct Answer: C

Difficulty: 3

Discrimination Index: 43

7.20   A student spends all of her income on pizza and books. When pizzas cost \$3 each and books cost \$10 each, she consumed 30 pizzas and 3 books per month. The price of pizzas fell to \$2.90 each while the price of books rose to \$11 each. The price change:

(a) made her worse off.

(b) left her exactly as well off as before.

(c) left her at least as well off as before and possibly helped her.

(d) might have helped her, might have harmed her. We can't tell which unless we observe what she consumed after the price change.

(e) had the same effect as a \$3 increase in her income.

Topic: Revealed Preference

% Correct Responses: 59

Correct Answer: C

Difficulty: 1

Discrimination Index: 42

7.21   A consumer's behavior was observed in three situations with different prices and incomes. In Situation 1, she chose a bundle that cost \$1,600. In Situation 2, she chose a bundle that cost \$2,500. In Situation 3, she chose a bundle that cost \$3,100. The bundle purchased in Situation 2 would cost \$1,200 at Situation 1 prices. The bundle purchased in Situation 3 cost \$2,000 at Situation 2 prices. This consumer's behavior is known to satisfy the strong axiom of revealed preference. Therefore:

(a) the bundle purchased in Situation 1 must cost less than \$3,100 at Situation 3 prices.

(b) the bundle purchased in Situation 3 must cost at least \$3,100 at Situation 1 prices.

(c) the bundle purchased in Situation 1 can not cost less than \$3,100 at Situation 3 prices.

(d) the bundle purchased in Situation 2 must cost at least \$3,100 at Situation 1 prices.

(e) None of the above.

Topic: Revealed Preference

Difficulty: 2

% Correct Responses: 51

Discrimination Index: 18

Correct Answer: B

7.22   Recall that the Laspeyres price index uses the old bundle as weights and the Paasche price index uses the new bundle as weights. If the prices of all goods double and your income triples, then:

(a) your income increase has exceeded the increase in the Laspeyres P.I. but may not have exceeded the increase in the Paasche P.I.

(b) your income increase has exceeded the increase in the Laspeyres P.I. and has also exceeded the increase in the Paasche P.I.

(c) your income increase has exceeded the increase in the Paasche P.I. but may not have exceeded the increase in the Laspeyres P.I.

(d) you would need to know the old and new consumption bundles to compare your income change with the change in price indexes.

(e) None of the above.

Topic: Revealed Preference

Difficulty: 1

% Correct Responses: 64

Discrimination Index: 20

Correct Answer: C

7.23   If the government gave you a subsidy of $100 per month that you had to spend on housing and if you could spend the remainder of your income in any way you wished, the effect of the subsidy would differ from the effect of a $100 per month unrestricted increase in your income only if:

(a) housing were an inferior good for you.

(b) housing were a normal good for you.

(c) you would spend less than $100 per month on housing when you received the unrestricted $100 monthly increase in your income.

(d) you would spend more than $100 per month on housing when you received the unrestricted $100 monthly increase in your income.

(e) your preferences were homothetic.

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 30   Discrimination Index: 0
Correct Answer: A

7.24 When the prices were $(5, 1)$, Vanessa chose the bundle $(x, y) = (6, 3)$. Now at the new prices, (p_x, p_y), she chooses the bundle $(x, y) = (5, 7)$. For Vanessa's behavior to be consistent with the weak axiom of revealed preference, it must be that:

(a) $4p_y < p_x$.

(b) $p_x < 4p_y$.

(c) $5p_y < p_x$.

(d) $p_y = 5p_x$.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 30   Discrimination Index: 0
Correct Answer: A

7.25 When the prices were $(3, 1)$, Zelda chose the bundle $(x, y) = (8, 7)$. Now at the new prices, (p_x, p_y), she chooses the bundle $(x, y) = (7, 9)$. For Zelda's behavior to be consistent with the weak axiom of revealed preference, it must be that:

(a) $2p_y < p_x$.

(b) $p_x < 2p_y$.

(c) $3p_y < p_x$.

(d) $p_y = 3p_x$.

(e) None of the above.

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.26

At prices $(p_1, p_2) = (4, 1)$, George buys the bundle $(x_1, x_2) = (10, 20)$. At prices $(p_1', p_2') = (1, 4)$, he buys the bundle $(x_1', x_2') = (4, 14)$. At prices (p_1'', p_2''), he buys the bundle $(x_1'', x_2'') = (20, 10)$. If his preferences satisfy the strong axiom of revealed preferences, then it must be that:

(a) $10p_1'' < 10p_2''$

(b) $10p_1'' < 8p_2$

(c) $8p_1 > 8p_2$

(d) $p_1'' = p_2''$

(e) None of the above.

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.27

At prices $(p_1, p_2) = (3, 1)$, Chen buys the bundle $(x_1, x_2) = (10, 18)$. At prices $(p_1', p_2') = (1, 3)$, he buys the bundle $(x_1', x_2') = (3, 15)$. At prices (p_1'', p_2''), he buys the bundle $(x_1'', x_2'') = (21, 9)$. If his preferences satisfy the strong axiom of revealed preferences, then it must be that:

(a) $11p_1'' < 9p_2''$

(b) $11p_1'' < 6p_2$

(c) $6p_1 > 9p_2$

(d) $p_1'' = p_2''$

(e) None of the above.

Topic: Revealed Preference

Difficulty: 3

% Correct Responses: 4

Discrimination Index: 0

Correct Answer: B

7.28   Tonal is a travelling substitute orchestra conductor. Each year, he starts in Ann Arbor, moves to Brownsville, then to Carson City,..., and so on until he reaches Zilvania, Ohio, after which he returns to Ann Arbor. He gets a salary according to the following simple rule. In Brownsville he is paid what his Ann Arbor consumption bundle would cost in Brownsville. In Carson City, he is paid what his Brownsville bundle would cost in Carson City, and so on. After 26 two-week stints, he returns to Ann Arbor, where he is paid the cost in Ann Arbor of his Zilvania bundle. At each stop, he spends his entire salary on apples (A) and paperback books (B), so as to maximize the utility $U = AB$. Over the course of the year, his utility will:

(a) be constant at every stop.

(b) increase at every stop where relative prices are different from the previous stop.

(c) decrease at every stop where relative prices are different from the previous stop.

(d) increase or decrease depending on whether the Paasche price index goes down or up between stops.

(e) increase or decrease depending on whether the Laspeyres price index goes down or up between stops.

Topic: Revealed Preference

Difficulty: 3

% Correct Responses: 44

Discrimination Index: 38

Correct Answer: A

7.29   If the only information we have about Goldie is that she chooses the bundle $(6,6)$ when prices are $(6,6)$ and she chooses the bundle $(10,0)$ when prices are $(4,5)$, then we can conclude that:

(a) the bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) the bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) the bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is no evidence that she violates WARP.

Topic: Revealed Preference

Difficulty: 3

% Correct Responses: 44

Discrimination Index: 38

Correct Answer: A

7.30   If the only information we have about Goldie is that she chooses the bundle $(6,6)$ when prices are $(6,7)$ and she chooses the bundle $(10,0)$ when prices are $(7,5)$, then we can conclude that:

(a) the bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) the bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) the bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is no evidence that she violates WARP.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 6
Correct Answer: C

7.31   Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 5 francs per loaf of bread. Henri consumes 5 glasses of wine and 4 loaves of bread per day. Bob has an income of $15 per day and pays $.50 per loaf of bread and $2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce:

(a) nothing about whether one is better off than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 6
Correct Answer: C

7.32   Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 6 francs per loaf of bread. Henri consumes 9 glasses of wine and 4 loaves of bread per day. Bob has an income of $15 per day and pays $.50 per loaf of bread and $2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce:

(a) nothing about whether one is better off than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 86   Discrimination Index: 31
Correct Answer: A

7.33   Consider the case of Ronald. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 $s1$ and the price of good 2 is 2, and Ronald's current c consumptions of good 1 and good 2 are 25 and 25 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 1.17

(b) 2.50

(c) 0.75

(d) 0.50

(e) 1.75

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 86   Discrimination Index: 31
Correct Answer: A

7.34   Consider the case of Ronald. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 $s1$ and the price of good 2 is 1, and Ronald's current c consumptions of good 1 and good 2 are 25 and 10 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 0.67

(b) 1.17

(c) 0.50

(d) 0.25

(e) 1

Topic: Revealed Preference
% Correct Responses: 86
Correct Answer: A

Difficulty: 2
Discrimination Index: 44

7.35 On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 96 fragels. In 1990, the price of good 1 was 4 fragels and the price of good 2 was 5 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is:

(a) 3.25.

(b) 4.50.

(c) 3.

(d) 5.25.

(e) not possible to determine from this information.

Topic: Revealed Preference
% Correct Responses: 86
Correct Answer: A

Difficulty: 2
Discrimination Index: 44

7.36 On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 84 fragels. In 1990, the price of good 1 was 1 fragels and the price of good 2 was 1 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is:

(a) 0.75.

(b) 1.

(c) 0.67.

(d) 1.25.

(e) not possible to determine from this information.

Topic: Revealed Preference

Difficulty: 2

% Correct Responses: 74

Discrimination Index: 56

Correct Answer: A

7.37 On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x,y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 11 doggerels per unit and the price of y was 4 doggerels per unit. The Paasche price index of prices in 1990 relative to prices in 1850 is:

(a) 6.50.

(b) 5.

(c) 2.75.

(d) 3.75.

(e) not possible to determine without further information.

Topic: Revealed Preference

Difficulty: 2

% Correct Responses: 74

Discrimination Index: 56

Correct Answer: A

7.38 On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x,y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 7 doggerels per unit and the price of y was 4 doggerels per unit. The Paasche price index of prices in 1990 relative to prices in 1850 is:

(a) 4.50.

(b) 3.67.

(c) 1.75.

(d) 2.75.

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 69   Discrimination Index: 32
Correct Answer: D

7.39   Howard Send is deciding whether to keep his car when he moves to New York City. To operate his car for a year, he would have to pay a flat fee of \$6,000 for auto insurance and parking, plus 20 cents for every mile that he drives for gasoline and repairs. Alternatively, he could give his car to his brother-in-law in Buffalo (the market value of the car is negligible) and take taxicabs in New York, which costs \$1 a mile. Howard knows that if he took the car to New York, he would drive 6500 miles per year. If he places no value, positive or negative, on his $brother-in-law$ getting the car and if he is indifferent between riding a cab and driving, he should:

(a) keep his car if he wouldn't want to travel as much as 6500 miles by cab.

(b) give his car away if he wouldn't travel more than 6000 miles by cab but keep it if he would travel more than 6000 miles by cab.

(c) keep his car if he would travel more than 6,000 but less than 6,500 miles by cab.

(d) give his car away.

(e) There is not enough information given here to allow one to give him reasonable advice about what to do.

Topic: Budgets   Difficulty: 0
% Correct Responses: 2   Discrimination Index: 0
Correct Answer: A

7.40   Franco and Gianni have the same tastes and consume only two goods, wine and pizza. Franco lives in Milano and spends 100,000 lire per week. It costs him 5,000 lire for a bottle of wine and 5,000 lire for a pizza. Gianni lives in Napoli. It costs him 4,000 lire for a bottle of wine and 6,000 lire for a pizza. At those prices, he chooses to buy 10 bottles of wine and 6 pizzas per week. From this information, we can deduce that:

(a) Franco is better off with his own budget than he would be with Gianni's.

(b) Gianni is better off with his own budget than he would be with Franco's.

(c) Franco and Gianni violate WARP.

(d) Franco and Gianni are equally well off.

(e) There is not enough information to determine whether either would prefer the other's bundle.

Topic: Revealed Preference   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

7.41   Hillary has an initial endowment of $500 and is interested in two things: how many visits she can make to the doctor, and money left over to spend on other things. When a trip to the doctor costs $50, Hillary sees the doctor 7 times. After health care reform, a visit to the doctor will cost $10 but her taxes will rise by $360.

(a) Hillary will be made better off by health care reform.

(b) Hillary will be made worse off by health care reform.

(c) We cannot tell how health care reform will affect Hillary.

(d) Hillary violates the Weak Axiom of Revealed Preference.

Topic: Revealed Preference   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

7.42   Hillary has an initial endowment of $500 and is interested in two things: how many visits she can make to the doctor, and money left over to spend on other things. When a trip to the doctor costs $60, Hillary sees the doctor 4 times. After health care reform, a visit to the doctor will cost $10 but her taxes will rise by $290.

(a) Hillary will be made better off by health care reform.

(b) Hillary will be made worse off by health care reform.

(c) We cannot tell how health care reform will affect Hillary.

(d) Hillary violates the Weak Axiom of Revealed Preference.

Chapter 8

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 24
Correct Answer: True

8.1   A Giffen good must be an inferior good.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 28
Correct Answer: False

8.2   If a good is an inferior good, then an increase in its price will increase the demand for it.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

8.3   The compensated demand function refers to the demand function of someone who is adequately paid for what he or she sells.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 55   Discrimination Index: 26
Correct Answer: False

8.4   The Slutsky substitution effect measures the movement between two points on the same indifference curve.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 45   Discrimination Index: 9
Correct Answer: False

8.5   In the case of homothetic preferences the entire change in demand from a price change is due to the substitution effect.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 28
Correct Answer: True

8.6   If two goods x and y are perfect complements, then if the price of x falls, the entire change in the demand for x is due to the income effect.

Topic: Slutsky Equation
% Correct Responses: 84
Correct Answer: True

Difficulty: 1
Discrimination Index: 19

8.7 If the Engel curve slopes up, then the demand curve slopes down.

Topic: Slutsky Equation
% Correct Responses: 54
Correct Answer: False

Difficulty: 1
Discrimination Index: 10

8.8 A rational consumer prefers more of good x to less. If the price of good x rises and the prices of all other goods remain constant, then the consumer must necessarily demand less of x.

Topic: Slutsky Equation
% Correct Responses: 69
Correct Answer: False

Difficulty: 1
Discrimination Index: 45

8.9 When the price of a good rises and income remains constant, there is a substitution effect on demand but there cannot be an income effect.

Topic: Slutsky Equation
% Correct Responses: 65
Correct Answer: True

Difficulty: 2
Discrimination Index: 35

8.10 Ivan spends his entire income on two goods. One of them is a Giffen good. If the price of the Giffen good rises, demand for the other good must fall.

Topic: Slutsky Equation
% Correct Responses: 85
Correct Answer: False

Difficulty: 1
Discrimination Index: 21

8.11 An increase in the price of a Giffen good makes the people who consume that good better off.

Topic: Slutsky Equation
% Correct Responses: 71
Correct Answer: True

Difficulty: 2
Discrimination Index: 2

8.12 Jessica's preferences for peanut butter and jelly are represented by the utility function $U(p, j) = min\{2p, 5j\}$. If prices and income change, but her old consumption bundle lies somewhere on her new budget line, she will not change her consumption.

Topic: Slutsky Equation

% Correct Responses: 67

Correct Answer: False

Difficulty: 2

Discrimination Index: 39

8.13 Jimmy's utility function is $U(a, b) = ab$ where a is his consumption of apples and b is his consumption of bananas. If prices and income change in such a way that Jimmy's old consumption lies on his new budget line, then Jimmy will not change his consumption bundle.

Topic: Slutsky Equation

% Correct Responses: 56

Correct Answer: True

Difficulty: 0

Discrimination Index: 8

8.14 Suppose a consumer has strictly convex preferences and her Engel curve for a good is a vertical line for some range of income. In that same income range, her demand curve for the good slopes down.

Topic: Slutsky Equation

% Correct Responses: 42

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

8.15 John purchases two goods, x and y. Good x is an inferior good for some range of income. There must be another range of income for which good x is a normal good.

Topic: Slutsky Equation

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

8.16 A consumer has the utility function $U(x, y) = x + 2y^{1/2}$. The price of good x is 2 and the price of good y is 1. The consumer's income is 20. If the price of good y rises to 2, then entire change in demand for y is due to the substitution effect.

Topic: Slutsky Equation

% Correct Responses: 0

Correct Answer: True

Difficulty: 0

Discrimination Index: 0

8.17 The Hicks version of the substitution effect of a price change measures the change in a consumer's demand if the consumer's income were changed just enough so the consumer would remain on the same indifference curve as before the price change.

Multiple Choice   Slutsky Equation

8.1   Cindy consumes goods x and y. Her demand for x is given by $x(p_x, m) = 0.05m - 5.15p_x$. Now her income is 419, the price of x is 3, and the price of y is 1. If the price of x rises to 4 and if we denote the income effect on her demand for x by DI and the substitution effect on her demand for x by DS, then:

(a) $DI = -0.28$ and $DS = -0.52$.

(b) $DI = -0.28$ and $DS = -4.88$.

(c) $DI = -0.52$ and $DS = -0.52$.

(d) $DI = 0$ and $DS = -2.00$.

(e) None of the above.

8.2   Cindy consumes goods x and y. Her demand for x is given by $x(p_x, m) = 0.05m - 5.25p_x$. Now her income is 545, the price of x is 4, and the price of y is 1. If the price of x rises to 5 and if we denote the income effect on her demand for x by DI and the substitution effect on her demand for x by DS, then:

(a) $DI = -0.31$ and $DS = -0.52$.

(b) $DI = -0.31$ and $DS = -4.94$.

(c) $DI = -0.52$ and $DS = -0.52$.

(d) $DI = 0$ and $DS = -2.00$.

(e) None of the above.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 53   Discrimination Index: 30
Correct Answer: C

8.3   Walt considers x and y to be perfect substitutes. They originally cost 10 and 9 respectively. His income is 720. One day the price of x drops to 8. Which of the following is true?

(a) The income effect increases the quantity of y by 90.

(b) The substitution effect increases the quantity of y by 80.

(c) The substitution effect increases the quantity of x by 90.

(d) The income effect increases the quantity of x by 80.

(e) None of the above.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.4   Ernest's income elasticity of demand for natural gas is .4. His price elasticity of demand for natural gas is $-.3$, and he spends 10% of his income on natural gas. What is his substitution price elasticity?

(a) $-.26$

(b) $-.34$

(c) .20

(d) $-.12$

(e) None of the above.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 10   Discrimination Index: 2
Correct Answer: A

8.5   Suppose that bananas are a normal good and Woody is currently consuming 100 bananas at a price of 10 cents each.

(a) His Slutsky compensated demand curve going through this point is steeper than his ordinary demand curve.

(b) His ordinary demand curve going through this point is steeper than his Slutsky compensated demand curve.

(c) His ordinary demand curve is steeper to the left and his Slutsky compensated demand curve is steeper to the right of this point.

(d) Whether his ordinary demand curve or his compensated demand curve is steeper, depends on whether his price elasticity is greater than 1.

(e) None of the above.

Topic: Slutsky Equation

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 21

Correct Answer: C

8.6 The following can be said about the income and substitution effects of a price increase on the demand for the good whose price rose:

(a) The former is always positive and the latter is always negative.

(b) Both can be either positive or negative.

(c) While the latter is always negative, the former can be either positive or negative.

(d) While the former is always negative, the latter can be either positive or negative.

(e) The former can at times be negative, but it will never overwhelm the latter.

Topic: Slutsky Equation

Difficulty: 3

% Correct Responses: 57

Discrimination Index: 21

Correct Answer: A

8.7 In 1989, Bruce spent his income on two goods x and y. Between 1989 and 1990, the price of good x rose by 8 per cent and the price of good y rose by 8 per cent. In 1990, Bruce bought the same amount of x as he bought in 1989, but he bought more of good y than he had bought in 1989. From these facts, we conclude that:

(a) y is a normal good.

(b) y is an inferior good.

(c) x is an inferior good.

(d) nothing can be said about inferiority or superiority, since we don't know what happened to income.

(e) Bruce is acting irrationally, since the relative prices of x and y did not change.

Topic: Slutsky Equation

Difficulty: 1

% Correct Responses: 36

Discrimination Index: 59

Correct Answer: E

8.8 When the price of x rises, Marvin responds by changing his demand for x. The substitution effect is the part of this change that represents his change in demand:

(a) holding the prices of substitutes constant.

(b) if he is allowed to substitute as much x for y as he wishes.

(c) if his money income is held constant when the price of x changes.

(d) if the prices of all other goods are held constant.

(e) none of the above.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

8.9   Polly consumes crackers and fruit. The price of fruit rose and the price of crackers stayed constant. The income effect on Polly's demand is:

(a) zero because Polly's income didn't change.

(b) the change in Polly's demand if her income is decreased by the change in the price of fruit times her old consumption of fruit.

(c) the change in Polly's demand if her income is decreased by the total amount she used to spend on fruit.

(d) the change in Polly's demand if her income is increased by the amount she used to spend on fruit.

(e) the change in Polly's demand if her income is increased by the change in the price of fruit times the amount she used to buy.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.10   Waldo consumes only apples and bananas and bananas are an inferior good for him. The price of apples increases, but there is an increase in his income that keeps him on the same indifference curve as before. (Waldo has convex *preferences*, and he prefers more to less of either good.)

(a) After the change, Waldo will buy more bananas and less apples.

(b) After the change, Waldo will buy less bananas and more apples.

(c) After the change, Waldo will buy more of both goods.

(d) After the change, Waldo will buy less of both goods.

(e) We would need to know his utility function to determine whether any of the above statements are true.

Topic: Slutsky Equation
% Correct Responses: 43
Correct Answer: B

Difficulty: 2
Discrimination Index: 41

8.11 Charlie consumes apples and bananas. His utility function is $U(X_A, X_B) = x_A x_B^2$. The price of apples is \$1, the price of bananas is \$2 and his income is \$30 per week. If the price of bananas falls to \$1:

(a) Charlie demands fewer apples and more bananas.

(b) the substitution effect of the fall in banana prices reduces his **APPLE** consumption, but the income effect increases his apple consumption by the same amount.

(c) the substitution effect of the fall in the price of bananas reduces his **BANANA** consumption but the income effect increases his banana consumption by enough so that his banana consumption rises.

(d) the income used to calculate the substitution effect is higher than his original income, since the change made Charlie better off.

(e) more than one of the above is true.

Topic: Slutsky Equation
% Correct Responses: 43
Correct Answer: B

Difficulty: 2
Discrimination Index: 58

8.12 Rob consumes two goods, x and y. He has an allowance of \$50 per week and is not endowed with either of the goods. If the price of good x increases and his substitution and income effects change demand in opposite directions:

(a) good x must be a Giffen good.

(b) good x must be an inferior good.

(c) WARP is violated.

(d) good x must be a normal good.

(e) there is not enough information to judge whether good x is a normal or inferior good.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 54   Discrimination Index: 42
Correct Answer: D

8.13   Ben consumes two goods and his utility function is $U(x_1, x_2) = x_1^2 x_2^4$. The price of good 2 does not change and his income does not change, but the price of good 1 decreases. It must be that:

(a) the income effect is zero, since his income remained constant.

(b) the substitution effect on the demand for good 2 is zero, since the price of good 2 did not change.

(c) the substitution effect reduces the demand for good 2 and, since the income effect is zero, demand for good 2 falls.

(d) the substitution effect of the price change reduces demand for good 2 and increases demand for good 1.

(e) more than one of the above statements is true.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 54   Discrimination Index: 42
Correct Answer: D

8.14   David consumes two goods and his utility function is $U(x_1, x_2) = x_1^5 x_2^6$. The price of good 2 does not change and his income does not change, but the price of good 1 decreases. It must be that:

(a) the income effect is zero, since his income remained constant.

(b) the substitution effect on the demand for good 2 is zero, since the price of good 2 did not change.

(c) the substitution effect reduces the demand for good 2 and, since the income effect is zero, demand for good 2 falls.

(d) the substitution effect of the price change reduces demand for good 2 and increases demand for good 1.

(e) more than one of the above statements is true.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 97   Discrimination Index: 9
Correct Answer: A

8.15   Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2.25 and the price of bananas fell to \$1.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of:

(a) 57.50.

(b) 116.

(c) 28.75.

(d) 86.25.

(e) 230.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 97   Discrimination Index: 9
Correct Answer: A

8.16   Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2 and the price of bananas fell to \$0.50, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of:

(a) 45.

(b) 91.

(c) 22.50.

(d) 67.50.

(e) 180.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 70   Discrimination Index: 75
Correct Answer: C

8.17   Charlie's utility function is $x_A x_B$. The price of apples used to be \$1, the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 6 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by:

(a) 16.67 apples.

(b) 5 apples.

(c) 8.33 apples.

(d) 13.33 apples.

(e) None of the above.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 70   Discrimination Index: 75
Correct Answer: C

8.18   Charlie's utility function is $x_A x_B$. The price of apples used to be \$1, the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 5 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by:

(a) 16 apples.

(b) 4 apples.

(c) 8 apples.

(d) 13 apples.

(e) None of the above.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 72   Discrimination Index: 81
Correct Answer: C

8.19   Neville from your workbook has a friend named Peregrine. Peregrine has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Peregrine's income is 6,500 and he initially had to pay a price of 50 per bottle of claret. The price of claret rose to 60. The substitution effect of the price change:

(a) reduced his demand by 20.

(b) increased his demand by 20.

(c) reduced his demand by 14.

(d) reduced his demand by 26.

(e) reduced his demand by 24.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 72   Discrimination Index: 81
Correct Answer: C

8.20   Neville from your workbook has a friend named Nigel. Nigel has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Nigel's income is 7,000 and he initially had to pay a price of 50 per bottle of claret. The price of claret rose to 80. The substitution effect of the price change:

(a) reduced his demand by 60.

(b) increased his demand by 60.

(c) reduced his demand by 36.

(d) reduced his demand by 84.

(e) reduced his demand by 46.

Topic: Slutsky Equation

Difficulty: 1

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: C

8.21 Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 300 and if the price of good 2 changes from 5 to 6, while the price of good 1 stays at 1, then the income effect of the price change:

(a) is 6 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 5 times as strong as the substitution effect.

Topic: Slutsky Equation

Difficulty: 1

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: C

8.22 Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 720 and if the price of good 2 changes from 8 to 9, while the price of good 1 stays at 1, then the income effect of the price change:

(a) is 9 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 8 times as strong as the substitution effect.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.23   Suppose that Agatha has $ 465 to spend on tickets for her trip. She intends to spend the entire amount $465 on tickets and she prefers traveling first-class to travelling second class. She needs to travel a total of 1500 miles. Suppose that the price of first class-tickets is $0.40 per mile and the price of second-class tickets is $0.10 per mile. How many miles will she travel by second class?

(a) 450

(b) 600

(c) 225

(d) 550

(e) 150

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.24   Suppose that Agatha has $ 420 to spend on tickets for her trip. She intends to spend the entire amount $420 on tickets and she prefers traveling first-class to travelling second class. She needs to travel a total of 1500 miles. Suppose that the price of first class-tickets is $0.30 per mile and the price of second-class tickets is $0.20 per mile. How many miles will she travel by second class?

(a) 300

(b) 450

(c) 150

(d) 400

(e) 100

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 30
Correct Answer: C

8.25   Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $5 per unit and hollyhocks cost $6 per unit, and if the price of delphiniums rises to $10 per unit:

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) 1/5 of the change will be due to the income effect.

(e) 4/5 of the change will be due to the income effect.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 30
Correct Answer: C

8.26   Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $4 per unit and hollyhocks cost $5 per unit, and if the price of delphiniums rises to $9 per unit:

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) 1/5 of the change will be due to the income effect.

(e) 4/5 of the change will be due to the income effect.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.27   Carlos consumes only two goods, apples and bananas. His utility function is given by $U(x, y) = a^3 b^2$. He is endowed with w_a apples and w_b bananas. Unaware that prices are about to change, Carlos buys the quantities of apples and bananas that maximize his utility subject to his budget constraint. After he has made his purchases, but before he has eaten them, the relative prices change. Carlos is then free to make further trades at the new relative prices if he wishes.

(a) Carlos will definitely be better off after the price change.

(b) Carlos will definitely be worse off after the price change.

(c) Carlos will be better off after the price change if the price of the good for which he is a net seller rises relative to the price of the other good.

(d) Carlos will be better off after the price change if the price of the good for which he is a net buyer rises relative to the price of the other good.

(e) Carlos' utility will not be affected by the price change.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

8.28   Carlos consumes only two goods, apples and bananas. His utility function is given by $U(x, y) = min\{x, 2y\}$. He is endowed with w_a apples and w_b bananas. Unaware that prices are about to change, Carlos buys the quantities of apples and bananas that maximize his utility subject to his budget constraint. After he has made his purchases, but before he has eaten them, the relative prices change. Carlos is then free to make further trades at the new relative prices if he wishes.

(a) Carlos will definitely be better off after the price change.

(b) Carlos will definitely be worse off after the price change.

(c) Carlos will be better off after the price change if the price of the good for which he is a net seller rises relative to the price of the other good.

(d) Carlos will be better off after the price change if the price of the good for which he is a net buyer rises relative to the price of the other good.

(e) Carlos' utility will not be affected by the price change.

Topic: Slutsky Equation

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

8.29 Gladys loves music and spends her money only on tapes and compact disks. She is always willing to trade 2 tapes for 1 compact disk. Originally, music stores sold compact disks for $9 each and tapes for $5 each. Then the price of compact disks fell to $8 each. The change in the consumption of compact disks that resulted is:

(a) entirely due to the substitution effect.

(b) entirely due to the income effect.

(c) partly due to the income effect and partly due to the substitution effect.

(d) will be due to the income effect for low incomes and the substitution effect for high incomes.

(e) There is no change in her demand for compact disks.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

8.1   A taxpayer says "Sure I pay a lot of income tax, but I don't mind because I get back just as much money as I pay in." Assuming that his facts are correct, explain why the taxpayer's reasoning is faulty. Use a diagram to show that an income tax can make a person worse off even if he is rebated an amount of money equal to what he paid in.

Answer: See page 148 of Varian.

Topic: Slutsky Equation   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

8.2   Use a diagram to prove that in case there are two goods, the substitution effect of an increase in the price of good x reduces the demand for good x.

Answer: A good way to proceed is to suppose that the price of x increases and the substitution effect increases demand for x. Draw the pivoted budget and notice that the new bundle would have to be a bundle that was previously rejected in favor of the old bundle. Since the pivoted budget still allows the old purchase, the weak axiom of revealed preference would be violated.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

8.3   Draw two different diagrams, one illustrating the Slutsky version of income and substitution effects and the other illustrating the Hicks version of income and substitution effects. How do these two notions differ?

Answer: The diagrams can be found in Varian's book. The Slutsky version of the substitution effect has income adjusted so the consumer is just able to afford the old bundle at the new prices. The Hicks version has the consumer's income adjusted so is exactly as well off as he was at the old prices.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

8.4   What conditions ensure that the quantity of a good demanded increases as its price falls? Explain your answer, using diagrams.

Answer: The standard Slutsky analysis is called for here. See the text.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

8.5 Suggest at least one reason why it might be worth the trouble it takes to learn how to decompose the effects of a price change into an income effect and a substitution effect.

Answer: The substitution effect of a price increase must decrease demand for that good. We know that if demand for the good increases as income increases, then the income effect works in the same direction as the substitution effect. Therefore the decomposition into income and substitution effects allows one to prove that the demand curve slopes down whenever the Engel curve slopes up. A second reason is that someone who has already purchased his planned consumption bundle faces only a substitution effect and not an income effect when prices change, since in this case his budget line just pivots around the current consumption.

Chapter 9

Topic: Buying and Selling

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

9.1 If a rational utility maximizer is a net demander of a good, and if an increase in its price causes him to buy more of it, then it must be an inferior good.

Topic: Buying and Selling

% Correct Responses: 68

Correct Answer: False

Difficulty: 2

Discrimination Index: 22

9.2 If a person is a net supplier of a normal good and its price increases while all other prices stay the same, then his demand for the good must decrease.

Topic: Buying and Selling

% Correct Responses: 70

Correct Answer: True

Difficulty: 1

Discrimination Index: 16

9.3 If a consumer is a buyer of some goods and a seller of others, then a change in prices will generate an extra income effect in the Slutsky equation due to the revaluation of the consumer's endowment.

Topic: Buying and Selling

% Correct Responses: 97

Correct Answer: True

Difficulty: 1

Discrimination Index: 9

9.4 If a consumer is initially endowed with a positive amount of two goods and sells some of one to get more of the other, and if she has no other sources of income, then her budget line will pass through her endowment point.

Topic: Buying and Selling

% Correct Responses: 71

Correct Answer: False

Difficulty: 2

Discrimination Index: 29

9.5 If a utility maximizer is a net seller of something and the price of that good rises while other prices stay constant, her situation might improve so much that she becomes a net buyer.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 93

Discrimination Index: 23

Correct Answer: True

9.6 If a person is a net seller of some good and the price of that good decreases, she might possibly become a net buyer.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 14

Correct Answer: False

9.7 Wilhelm consumes only apples and bananas. His endowment is 5 units of apples and 10 units of bananas. Both goods are normal goods for Wilhelm. At current prices, Wilhelm is a net seller of apples. If the price of apples rises and the price of bananas stays the same, his demand for apples must decrease.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 50

Discrimination Index: 0

Correct Answer: False

9.8 Bill receives half of his income in wages and half of his income in dividends. Bill would be indifferent between a 50 percent increase in his wage rate and a 50 percent increase in his dividend income.

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 72

Discrimination Index: 6

Correct Answer: False

9.9 If all goods, including leisure, are normal goods, then an increase in the wage rate will necessarily make people want to work more hours.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 19

Discrimination Index: 48

Correct Answer: True

9.10 If someone has a Cobb-Douglas utility function and no income from any source other than labor earnings, then an increase in wages will not change the amount that person chooses to work.

Topic: Buying and Selling
% Correct Responses: 87
Correct Answer: True

Difficulty: 1
Discrimination Index: 5

9.11   If leisure is a normal good, then an increase in non-labor income will reduce labor supply.

Topic: Buying and Selling
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

9.12   A person's full income is the amount of income that he or she would have if there were no taxes.

Topic: Buying and Selling
% Correct Responses: 79
Correct Answer: False

Difficulty: 2
Discrimination Index: 29

9.13   If a person has no non-labor income, a decrease in wages causes the budget line between leisure and other goods to shift downward in a parallel fashion.

Topic: Buying and Selling
% Correct Responses: 67
Correct Answer: True

Difficulty: 1
Discrimination Index: 24

9.14   If leisure is an inferior good, then an increase in the wage rate will make a person work more.

Topic: Buying and Selling
% Correct Responses: 64
Correct Answer: False

Difficulty: 1
Discrimination Index: 31

9.15   Jack has a backward-bending labor supply curve. At wages of $5 an hour he chooses to work 50 hours a week. His boss wants him to work more hours per week and offers him $5 an hour for the first 50 hours per week and $7 an hour for every hour beyond 50 hours per week. Because of his backward bending supply curve, Jack might actually choose to work fewer hours.

Topic: Buying and Selling
% Correct Responses: 73
Correct Answer: True

Difficulty: 2
Discrimination Index: 26

9.16   Les is allowed to work only 8 hours a day at his main job, although he would like to work more hours. He takes a second job. He can work as many hours as he wishes at the second job, but at a lower wage. If leisure is a normal good, then an increase in the wage rate for his first job will reduce the number of hours he chooses to work at his second job.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 79

Discrimination Index: 46

Correct Answer: False

9.17 Suppose a consumer is initially endowed with a positive amount of two goods, sells some of one to get more of the other, and has no other sources of income. If the price of one good falls, his new budget line is everywhere above his old budget line.

Topic: Buying and Selling   Difficulty: 1

% Correct Responses: 88   Discrimination Index: 23

Correct Answer: C

9.1 Marsha Mellow is very flexible. She consumes x and y. She says 'Give me x or give me y, I don't care. I can't tell the difference between them.' She is currently endowed with 14 units of x and 6 units of y. The price of x is 4 times the price of y. Marsha can trade x and y at the going prices, but has no other source of income. How many units of y will Marsha consume?

(a) 66

(b) 20

(c) 62

(d) 6

(e) 31

Topic: Buying and Selling   Difficulty: 1

% Correct Responses: 88   Discrimination Index: 23

Correct Answer: C

9.2 Marsha Mellow is very flexible. She consumes x and y. She says 'Give me x or give me y, I don't care. I can't tell the difference between them.' She is currently endowed with 4 units of x and 17 units of y. The price of x is 2 times the price of y. Marsha can trade x and y at the going prices, but has no other source of income. How many units of y will Marsha consume?

(a) 27

(b) 21

(c) 25

(d) 17

(e) 13

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 56   Discrimination Index: 39
Correct Answer: C

9.3   Yoram insists on consuming 3 times as much y as he consumes of x (so he always has $y = 3x$). He will consume these goods in no other ratio. The price of x is 2 times the price of y. Yoram has an endowment of 24 $x's$ and 42 $y's$ which he can trade at the going prices. He has no other source of income. What is Yoram's gross demand for x?

(a) 90

(b) 66

(c) 18

(d) 16

(e) We can't determine the answer without knowing the price of x.

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 56   Discrimination Index: 39
Correct Answer: C

9.4   Pablo insists on consuming 4 times as much y as he consumes of x (so he always has $y = 4x$). He will consume these goods in no other ratio. The price of x is 5 times the price of y. Pablo has an endowment of 15 $x's$ and 60 $y's$ which he can trade at the going prices. He has no other source of income. What is Pablo's gross demand for x?

(a) 135

(b) 75

(c) 15

(d) 10

(e) We can't determine the answer without knowing the price of x.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 29
Correct Answer: C

9.5   Diana consumes commodities x and y and her utility function is $U(x, y) = xy^2$. Good x costs $2 per unit and good y costs $1 per unit. If she is endowed with 3 units of x and 6 units of y, how many units of good y will she consume?

(a) 11

(b) 3

(c) 8

(d) 14

(e) None of the above.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 29
Correct Answer: C

9.6   Maude consumes commodities x and y and her utility function is $U(x, y) = xy^3$. Good x costs $3 per unit and good y costs $1 per unit. If she is endowed with 6 units of x and 2 units of y, how many units of good y will she consume?

(a) 18

(b) 6

(c) 15

(d) 17

(e) None of the above.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 44
Correct Answer: A

9.7   Donald consumes goods x and y. His utility function is $U(x, y) = xy^3$. He is endowed with 43 units of x and 7 units of y. The price of x is 1 and the price of y is 3. Find his net demand for x.

(a) -27

(b) 18

(c) -30

(d) -20

(e) 59

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 75

Discrimination Index: 44

Correct Answer: A

9.8 Donald consumes goods x and y. His utility function is $U(x, y) = xy^4$. He is endowed with 78 units of x and 9 units of y. The price of x is 1 and the price of y is 3. Find his net demand for x.

(a) -57

(b) 23

(c) -60

(d) -48

(e) 99

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 87

Discrimination Index: 6

Correct Answer: D

9.9 Jackie's net demands for x and y are $(6, -6)$ and her gross demands are $(15, 15)$. What is her initial endowment of x?

(a) 16

(b) 13

(c) 5

(d) 9

(e) None of the above.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 71

Discrimination Index: 46

Correct Answer: C

9.10 Holly consumes x and y. The price of x is 4 and the price of y is 4. Holly's only source of income is her endowment of 6 units of x and 6 units of y which she can buy or sell at the going prices. She plans to consume 7 units of x and 5 units of y. If the prices change to 7 for x and 7 for y, which of the following is true?

(a) She is better off.

(b) She is worse off.

(c) She is neither better off nor worse off.

(d) We can't tell whether she is better off or worse off unless we know her utility function.

(e) She is better off if she has non-convex preferences.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 71

Discrimination Index: 46

Correct Answer: C

9.11 Kristina consumes x and y. The price of x is 5 and the price of y is 5. Kristina's only source of income is her endowment of 6 units of x and 6 units of y which she can buy or sell at the going prices. She plans to consume 7 units of x and 5 units of y. If the prices change to 8 for x and 8 for y, which of the following is true?

(a) She is better off.

(b) She is worse off.

(c) She is neither better off nor worse off.

(d) We can't tell whether she is better off or worse off unless we know her utility function.

(e) She is better off if she has non-convex preferences.

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 19

Correct Answer: D

9.12 Milton consumes two commodities in a perfect market system. The price of x is 5 and the price of y is 1. His utility function is $U(x, y) = xy$. He is endowed with 40 units of good x and no y. Find his consumption of good y.

(a) 110

(b) 105

(c) 50

(d) 100

(e) None of the above.

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 85

Discrimination Index: 19

Correct Answer: D

9.13 Milton consumes two commodities in a perfect market system. The price of x is 5 and the price of y is 1. His utility function is $U(x, y) = xy$. He is endowed with 24 units of good x and no y. Find his consumption of good y.

(a) 70

(b) 65

(c) 30

(d) 60

(e) None of the above.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 75

Discrimination Index: 47

Correct Answer: A

9.14 Russ Tickman is a dairy farmer. He consumes milk and other goods. His utility function is given by $U(x, y) = y(x + 1)$ where x is his milk consumption and y is his consumption of other goods. His initial endowment is 19 units of milk per day and no units of other goods. If the price of milk is 2 and the price of other goods is 1, how much milk does he consume?

(a) 9 gallons

(b) 38 gallons

(c) 20 gallons

(d) 14 gallons

(e) 12 gallons

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

9.15 Jack earns 5 dollars per hour. He has 100 hours per week which he can use for either labor or leisure. The government institutes a plan in which each worker receives a \$100 grant from the government, but has to pay 50% of his or her labor income in taxes. If his utility function is $U(c, r) = cr$ where c is dollars worth of consumption of goods and r is hours of leisure per week, how many hours per week will Jack choose to work?

(a) 30

(b) 40

(c) 26

(d) 20

(e) None of the above.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 57   Discrimination Index: 15
Correct Answer: E

9.16   Aristotle earns 5 dollars per hour. He has 110 hours per week available for either labor or leisure. In the old days he paid no taxes and received nothing from the government. Now he gets a $200 payment per week from the government and he must pay half of his labor income in taxes. (His before-tax wages are the same as they were *before*, and he has no other source of income than wages and payments from the government.) He notices that with the government payment and his taxes, he can exactly afford the combination of leisure and consumption goods that he used to choose. How many hours per week did he work in the old days?

(a) 100

(b) 20

(c) 45

(d) 60

(e) None of the above.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 31   Discrimination Index: 40
Correct Answer: C

9.17   Rhoda takes a job with a construction company. She earns $5 an hour for the first 40 hours of each week and then gets "double-time" for overtime. That is, she is paid $10 an hour for every hour beyond 40 hours a week that she works. Rhoda has 70 hours a week available to divide between construction work and leisure. She has no other source of income, and her utility function is $U = cr$ where c is her income to spend on goods and r is the number of hours of leisure that she has per week. She is allowed to work as many hours as she wants to. How many hours will she work?

(a) 50

(b) 30

(c) 45

(d) 35

(e) None of the above.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

9.18   Wendy and Mac work in fast-food restaurants. Wendy is paid $4 an hour for the first 40 hours a week that she works and $6 an hour for every hour beyond 40 hours per week. Mac gets $5 an hour no matter how many hours he works. Each has 110 hours per week to allocate between work and leisure. Each has a utility function $U = cr$ where c is expenditure per week on consumption and r is hours of leisure per week. Each can choose the number of hours to work. If Wendy works W hours and Mac works M hours, then:

(a) $W = 1.5M$.

(b) $W < M$.

(c) $W - M = 6.66$.

(d) $W - M = 10$.

(e) None of the above.

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 63   Discrimination Index: 36
Correct Answer: B

9.19   Heather and Myrtle have the same tastes. Heather is paid $10 an hour and chooses to work 9 hours a day. Myrtle is paid $9 an hour for the first 8 hours she works and $18 an hour for any time she works beyond 8 hours a day.

(a) Since she has the same tastes as Heather and can earn the same income by working 9 hours a day, she chooses to work 9 hours a day.

(b) Unless her indifference curve is kinked, Heather would be better off facing the same pay schedule as Myrtle.

(c) Myrtle would prefer Heather's pay schedule to her own.

(d) Myrtle will work less than 9 hours a day.

(e) None of the above.

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 71

Discrimination Index: 10

Correct Answer: C

9.20 Mike Teevee likes to watch television and to eat candy. In fact his utility function is $U(x, y) = x^2 y$ where x is the number of hours he spends watching television and y is the number of dollars per week he spends on candy. Mike's mother doesn't like him to watch so much television. She limits his television watching to 36 hours a week and in addition she pays him \$1 an hour for every hour that he reduces his television watching below 36 hours a week. If this is Mike's only source of income to buy candy, how many hours of television does he watch per week?

(a) 36

(b) 12

(c) 24

(d) 18

(e) 16

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 75

Discrimination Index: 29

Correct Answer: B

9.21 Georgina earns 6 dollars an hour. She has no non-labor income. She has 100 hours a week available for either labor or leisure. Her utility function is $U(c, r) = cr^3$ where c is dollars worth of goods and r is hours of leisure. How many hours per week will she work?

(a) 23

(b) 25

(c) 28

(d) 50

(e) None of the above.

Topic: Buying and Selling
% Correct Responses: 75
Correct Answer: B

Difficulty: 2
Discrimination Index: 29

9.22   Nicole earns 6 dollars an hour. She has no non-labor income. She has 75 hours a week available for either labor or leisure. Her utility function is $U(c, r) = cr^2$ where c is dollars worth of goods and r is hours of leisure. How many hours per week will she work?

(a) 23

(b) 25

(c) 28

(d) 37.50

(e) None of the above.

Topic: Buying and Selling
% Correct Responses: 48
Correct Answer: A

Difficulty: 2
Discrimination Index: 23

9.23   Will is paid \$10 an hour for the first 40 hours per week that he works. He can also work as many hours overtime as he wishes to. He is paid \$15 an hour for every hour that he works beyond 40 hours a week. Leisure is a normal good for Will and he is currently working some overtime. If his hourly wage for the first 40 hours per week that he works rises to \$12 and his wages for overtime remain at \$15 per hour:

(a) he will choose to work fewer hours per week.

(b) he will choose to work more hours per week.

(c) he will choose to work the same number of hours per week.

(d) he will choose to work more hours per week if and only if his income exceeds his labor income.

(e) he will choose to work more hours per day if and only if he works less than 20 hours overtime per week.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 48   Discrimination Index: 23
Correct Answer: A

9.24   Ben is paid $6 an hour for the first 40 hours per week that he works. He can also work as many hours overtime as he wishes to. He is paid $13 an hour for every hour that he works beyond 40 hours a week. Leisure is a normal good for Ben and he is currently working some overtime. If his hourly wage for the first 40 hours per week that he works rises to $8 and his wages for overtime remain at $13 per hour:

(a) he will choose to work fewer hours per week.

(b) he will choose to work more hours per week.

(c) he will choose to work the same number of hours per week.

(d) he will choose to work more hours per week if and only if his income exceeds his labor income.

(e) he will choose to work more hours per day if and only if he works less than 20 hours overtime per week.

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 40   Discrimination Index: 28
Correct Answer: B

9.25   There are no taxes on the first $500 that Debra earns per week, but on income above $500 per week, she must pay a 60% tax. Debra's job pays $10 per hour. Her utility function is $U(c, r) = rc^2$, where r is hours of leisure and c is dollars worth of consumption. She has 100 hours to divide between work and leisure. How many hours per week will she choose to work?

(a) 66.66

(b) 50

(c) 40

(d) 33.33

(e) 20

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 40   Discrimination Index: 43
Correct Answer: C

9.26   Susan's utility function is $U(x, y) = (x + y)R^2$, where x and y are the quantities of goods X and Y that she consumes, and R is the number of hours of leisure that she has per day. Good X costs 4 dollars per unit and good Y costs 2 dollars per unit. Her wage rate is 8 dollars per hour and she has 15 hours per day to allocate between labor and leisure. She will:

(a) consume equal amounts of X and Y.

(b) consume 10 units of X.

(c) consume 20 units of Y.

(d) work 10 hours a day.

(e) consume twice as much of good X as of good Y.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

9.27   George Goodhands is a life-insurance agent. He can work 40 hours a week for a large national insurance company and receive a fixed salary of S dollars per week, or he can work independently, for as many or as few hours per week as he likes and earn w dollars per hour. (He can not take both jobs.) Which of the following responses to an increase in the salary paid by the insurance company would be INCONSISTENT with the weak axiom of revealed preference?

(a) Leaving independent work for the 40 hour salaried job.

(b) Doing exactly what he was doing before.

(c) More than one of these options.

(d) Continuing to work independently, but working more hours.

(e) None of the above.

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 24   Discrimination Index: 11
Correct Answer: E

9.28   Gladys Goodhands is an insurance agent. She must choose one and only one of two possible alternative jobs. She can either work for a large national insurance company for which she must work exactly 40 hours a week and will receive a salary of S dollars per week, or she can work as an independent insurance agent, in which case she can work exactly as many hours per week as she wishes and will earn w dollars for every hour that she works. Gladys satisfies the weak axiom of revealed preference and she cares only about how much money she makes and about how much leisure time she has. Which of the following statements is necessarily true?

(a) If $(S/40) > w$, she will prefer to work for the large national insurance company.

(b) If $(S/40) < w$ and she decides to work independently, then it must be that she chooses to work more than 40 hours a week.

(c) If $(S/40) < w$ and she decides to work independently, then it must be that she chooses to work less than 40 hours a week.

(d) If $(S/40) = w$, she will be indifferent between working for the large insurance company and working independently.

(e) None of the above.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 58
Correct Answer: A

9.29   Albert consumes only tangerines and bananas. His only source of income is an initial endowment of 30 units of tangerines and 10 units of bananas. Albert insists on consuming tangerines and bananas in fixed *proportions* − −*one* unit of tangerines per unit of bananas. He initially faces a price of 10 per unit for each fruit. The price of tangerines rose to 30 per unit while the price of bananas stayed unchanged. After the price change, he would:

(a) increase his consumption of tangerines by exactly 5 units.

(b) decrease his consumption or tangerines by at least 5 units.

(c) increase his consumption of tangerines by exactly 15 units.

(d) decrease his consumption of tangerines by exactly 7 units.

(e) decrease his consumption of bananas by at least 1 unit.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 58
Correct Answer: A

9.30   Boris consumes only cherries and pineapples. His only source of income is an initial endowment of 30 units of cherries and 10 units of pineapples. Boris insists on consuming cherries and pineapples in fixed *proportions − −one* unit of cherries per unit of pineapples. He initially faces a price of 25 per unit for each fruit. The price of cherries rose to 75 per unit while the price of pineapples stayed unchanged. After the price change, he would:

(a) increase his consumption of cherries by exactly 6 units.

(b) decrease his consumption or cherries by at least 6 units.

(c) increase his consumption of cherries by exactly 16 units.

(d) decrease his consumption of cherries by exactly 8 units.

(e) decrease his consumption of pineapples by at least 1 unit.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 88   Discrimination Index: 36
Correct Answer: B

9.31   Yolanda receives a lump sum child-support payment of $150 per week. She has 80 hours a week to divide between labor and leisure. She earns $5 an hour. The first $150 per week of her labor income is untaxed, but all labor income that she earns above $ 150 is taxed at the rate 30 percent. If we graph her budget line with leisure on the horizontal axis and consumption on the vertical axis, her budget line:

(a) has a kink in it at the point where she takes 60 units of leisure.

(b) has a kink in it where her income is 300 and her leisure is 50.

(c) has a slope of −3.50 everywhere,

(d) has no kinks in the part that corresponds to positive labor supply.

(e) has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 88   Discrimination Index: 36
Correct Answer: B

9.32   Heidi receives a lump sum child-support payment of $50 per week. She has 80 hours a week to divide between labor and leisure. She earns $5 an hour. The first $200 per week of her labor income is untaxed, but all labor income that she earns above $ 200 is taxed at the rate 30 percent. If we graph her budget line with leisure on the horizontal axis and consumption on the vertical axis, her budget line:

(a) has a kink in it at the point where she takes 50 units of leisure.

(b) has a kink in it where her income is 250 and her leisure is 40.

(c) has a slope of -3.50 everywhere,

(d) has no kinks in the part that corresponds to positive labor supply.

(e) has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 99   Discrimination Index: 0
Correct Answer: D

9.33   If Abishag owns 16 quinces and 15 kumquats, and if the price of kumquats is 4 times the price of quinces, how many kumquats can she afford if she buys as many kumquats as she can?

(a) 38

(b) 31

(c) 15

(d) 19

(e) 16

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 99   Discrimination Index: 0
Correct Answer: D

9.34   If Abishag owns 12 quinces and 10 kumquats, and if the price of kumquats is 3 times the price of quinces, how many kumquats can she afford if she buys as many kumquats as she can?

(a) 28

(b) 22

(c) 10

(d) 14

(e) 11

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 78   Discrimination Index: 35
Correct Answer: A

9.35   Mario consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $25 per bushel for each vegetable, but the price of eggplant rose to $100 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would:

(a) increase his eggplant consumption by 6 bushels.

(b) decrease his eggplant consumption by at least 6 bushels.

(c) increase his consumption of eggplant by 8 bushels.

(d) decrease his consumption of eggplant by 8 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 78   Discrimination Index: 35
Correct Answer: A

9.36   Mario consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $25 per bushel for each vegetable, but the price of eggplant rose to $50 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would:

(a) increase his eggplant consumption by 3.33 bushels.

(b) decrease his eggplant consumption by at least 3.33 bushels.

(c) increase his consumption of eggplant by 5.33 bushels.

(d) decrease his consumption of eggplant by 5.33 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 88   Discrimination Index: 36
Correct Answer: B

9.37   Dr. Johnson receives a lump sum payment of $ 150 per week. Suppose that the first $150 per week of his labor income is untaxed, but all labor income above $150 is taxed at a rate of 10 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 60 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 300 and his leisure is 50.

(c) Dr. $J's$ budget line has slope -4.50 everywhere.

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 88   Discrimination Index: 36
Correct Answer: B

9.38   Dr. Johnson receives a lump sum payment of $ 150 per week. Suppose that the first $150 per week of his labor income is untaxed, but all labor income above $150 is taxed at a rate of 50 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 60 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 300 and his leisure is 50.

(c) Dr. $J's$ budget line has slope -2.50 everywhere.

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 25
Correct Answer: E

9.39   Dudley has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $20 per day and is paid a wage of $0 per hour, how many hours of leisure will he choose per day?

(a) 9

(b) 10

(c) 11

(d) 13

(e) 12

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 25
Correct Answer: E

9.40   Dudley has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $40 per day and is paid a wage of $0 per hour, how many hours of leisure will he choose per day?

(a) 7

(b) 8

(c) 9

(d) 11

(e) 10

9.41 Mr. Cog has 18 hours per day to divide between labor and leisure. His utility function is $U(C, R) = CR$, where C is dollars per year spent on consumption and R is hours of leisure. If he has 19 dollars of nonlabor income per day and gets a wage rate of 15 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as:

(a) $15R + C = 19$.

(b) $15R + C = 289$.

(c) $R + C/15 = 379$.

(d) $C = 289 + 15R$.

(e) $C = 346 + 15R$.

9.42 Mr. Cog has 18 hours per day to divide between labor and leisure. His utility function is $U(C, R) = CR$, where C is dollars per year spent on consumption and R is hours of leisure. If he has 5 dollars of nonlabor income per day and gets a wage rate of 18 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as:

(a) $18R + C = 5$.

(b) $18R + C = 329$.

(c) $R + C/18 = 437$.

(d) $C = 329 + 18R$.

(e) $C = 344 + 18R$.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 47   Discrimination Index: 43
Correct Answer: D

9.43   Mr. Cog has 18 hours per day to divide between labor and leisure. His utility function is $U(C, R) = CR$, where C is dollars per year spent on consumption and R is hours of leisure. If he has a nonlabor income of 40 dollars per day and a wage rate of 8 dollars per hour, he will choose a combination of labor and leisure that allows him to spend:

(a) 184 dollars per day on consumption.

(b) 82 dollars per day on consumption.

(c) 112 dollars per day on consumption.

(d) 92 dollars per day on consumption.

(e) 138 dollars per day on consumption.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 47   Discrimination Index: 43
Correct Answer: D

9.44   Mr. Cog has 18 hours per day to divide between labor and leisure. His utility function is $U(C, R) = CR$, where C is dollars per year spent on consumption and R is hours of leisure. If he has a nonlabor income of 44 dollars per day and a wage rate of 19 dollars per hour, he will choose a combination of labor and leisure that allows him to spend:

(a) 386 dollars per day on consumption.

(b) 183 dollars per day on consumption.

(c) 215 dollars per day on consumption.

(d) 193 dollars per day on consumption.

(e) 289.50 dollars per day on consumption.

Topic: Buying and Selling

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

9.45   Ollie South has an endowment of 10 guns and 10 pounds of butter. He can buy or sell butter at \$1 a pound. But the world market for guns is more complicated: he can buy guns for \$5 each, but he can sell guns for only \$2. If we graph his budget line with guns on the horizontal axis and butter on the vertical axis, then Ollie's budget line is:

(a) a straight line joining $(12, 0)$ and $(0, 30)$.

(b) a straight line joining $(14, 0)$ and $(0, 14)$.

(c) a straight line with slope $-2/5$ through the point $(10, 10)$.

(d) a straight line with slope $-5/2$ going through the point $(10, 10)$.

(e) none of the above.

Topic: Buying and Selling

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

9.46   Charlie consumes apples and bananas; his utility function is $U(a, b) = ab$. Charlie's fruit farm yielded 5 apples and 10 bananas. In addition, Charlie has \$10 that he was given by a secret admirer. Charlie can buy or sell apples at \$2 each and he can buy or sell bananas at \$1 each. Charlie will consume:

(a) more apples and more bananas than he grows.

(b) more apples and fewer bananas than he grows.

(c) fewer apples and more bananas than he grows.

(d) fewer apples and more bananas than he grows.

(e) exactly as many apples as he grows and more bananas than he grows.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

9.47   A farmer gets 20 eggs and 10 tomatoes every week from her chickens and her tomato plants. She has no other source of income. She has convex, downward-sloping indifference curves. The current market prices are $2 per egg and $3 per tomato. At these prices she chooses the same bundle that she is endowed with (20 eggs and 10 tomatoes).

(a) If relative prices change in any way whatsoever, she will certainly be no worse off and may be better off than she was before the price change.

(b) An increase in the price of eggs (with the price of tomatoes remaining constant) will decrease her utility.

(c) An increase in the price of tomatoes (with the price of eggs remaining constant) will make her worse off.

(d) If both prices rise, she will be worse off, but if only one price rises she might be made better off or worse off, depending on her tastes.

(e) Since she earns her income from tomatoes and eggs only, she treats eggs and tomatoes as perfect substitutes.

Topic: Buying and Selling   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

9.1   Mr. and Mrs. Brauer owned their own home. There was a real estate boom in their town and the price of house doubled. Their income and other prices stayed constant. The Brauer's complained that "we are being driven from our home, we can't afford to live here any more". a) Draw a diagram that illustrates what happened to the Brauer's budget constraint. b) Could they have been made worse off by the change? Could they have been made better off? Explain why or why not.

Answer: A good diagram would show their budget line between housing and other goods pivoting around their current consumption. They can't be made worse off because they can still afford their old consumption bundle. They might be better off because they might choose to consume less housing and more other goods.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

9.2   Harvey's net demands for goods 1 and 2 are $(2, -3)$ and his endowment is $(6, 5)$. a) What are his gross demands? b) Draw a diagram illustrating his budget line, his endowment, and his consumption. (Put good 1 on the horizontal axis.) (c) Draw a dotted line to show what his budget line would be if the price of good 1 doubled and the price of good 2 stayed the same.

Answer: Harvey's gross demands are $(8, 2)$. The graph is pretty straightforward. Check the text for similar graphs.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

9.3   Is it ever possible that if someone is a net seller of a good, and the price of the good he sells falls, the consumer could wind up better off than he was before by switching from being a seller to being a buyer? Draw a graph to justify your answer.

Answer: Yes, it is possible. For example, one can draw a budget line and an indifference curve for a person who is a net seller of the good on the horizontal axis. The price decrease pivots the budget line around his initial endowment which is located below and to the right of his consumption. Draw the pivoted line so that it crosses the indifference curve. The consumer can now benefit by becoming a net buyer of the good on the horizontal axis.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

9.4   Is it ever possible that an increase in the price of a good for which a person is a net seller can make him worse off? Use a diagram to illustrate your answer.

Answer: No, it is not. If one is a net seller of a good and its price rises, one can still afford the old consumption bundle and hence can't be made worse off.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

9.5   Peter has an endowment of 3 units of good x and 5 units of good y. He can buy and sell x at a price of \$100 and y at a price of \$200. He receives an income of \$700 as alimony from a former spouse. a) Draw Peter's budget line for x and y. Show his initial endowment of x and y on your diagram. *b*) Calculate the amount of x that he could afford if he bought only x and of y he could afford if he bought only y. *c*) Write an equation for Peter's budget.

Answer: He could afford 20 units of x and no y or 10 units of y and no x. His budget is $100x + 200y = 2000$.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

9.6   Dudley's utility function for goods and leisure is $U(G, L) = G - (20 - L)(20 - L)$ where G is consumption of goods and L is the number of hours of leisure per day. Goods cost \$1 per unit. (a) If Dudley has an income from nonlabor sources of \$25 per day and could work as much as he chose to but gets zero wages, how much would he work? (*b*) Sketch Dudley's indifference curves on a graph with leisure on the horizontal axis and income on the vertical axis. If Dudley's non-labor income were \$25 a day and he could work as much as he wished for \$10 an hour, how many hours a day would he choose to work?

Answer: a) 4 hours a day. *b*)9 hours a day.

Topic: Buying and Selling

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

9.7 Marilyn is a journalist. She is considering two possible jobs. One job is as an editor for a magazine. The other job is writing
"free-lance" articles and selling them to whoever buys them. If she works for the magazine, she must spend 10 hours a day at work and commuting. She will be paid $130 a day net of commuting costs and taxes if she takes this job. If she writes free-lance articles, she can work at home and work as many hours a day as she pleases. She estimates that she would earn $10 an hour after taxes if she does this. Her utility function is $U = (R^3)C$ where R^3 is the cube of the number of hours a day she spends not working or commuting and C is her earnings. a) If Marilyn chooses to free-lance, how many hours will she work? b) Calculate her utility in each job and tell which she will choose.

Answer: a) 6 hours. b) If she freelances, $U = 349,920$. If she works for the magazine $U = 356,720$. She should choose the magazine.

Topic: Buying and Selling

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

9.8 Ernie's wage rate is $10 an hour. He has no earnings other than his labor income. His utility function is $U(C, L) = CR^2$ where C is the amount of money he spends on consumption, and R is the number of hours a day he spends NOT working. a) Write an equation that describes Ernie's budget constraint. b) How many hours does Ernie choose to work per day? c) How much money does he spend on consumption per day?

Answer: a) $C + 10R = 240$. b)8. c)80.

Topic: Buying and Selling

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

9.9 May's utility function is $U = C + 14D^{1/2} - .5(H + J)^2$ where C is dollars spent on goods other than housecleaning, D is the number of hours per day that somebody spends cleaning her house, H is the number of hours per day May spends cleaning her house, and J is the number of hours per day May spends working at her job. All May's income comes from her job. She can work as many hours a day as she wishes at a wage of $7 an hour. a) If she cannot hire anyone to do her housecleaning, how many hours will she spend on the job and how many hours will she spend housecleaning? b) If she can hire a housecleaner at $5 an hour, how many hours will she work on her job, how many hours of housecleaning will she hire, and how many hours will she clean house?

Answer: a)6 hours, 1 hour b)7 hours, 49/25, 0

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

9.10   Leo thinks leisure and goods are perfect complements. Goods cost $1 per unit. Leo wants
to consume 5 units of goods per hour of leisure. Leo can work as much as he wants to at the wage
rate of $15 an hour. He has no other source of income. a) How many hours a day will Leo choose
to spend at leisure? *b*) Draw a diagram showing Leo's budget and his choice of goods and leisure.
c) Will Leo work more or less if his wage rate increases?

Answer: (a) 18 hours a day (*c*) less

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

9.11   Lucetta changes light bulbs. She is paid $10 an hour. She can work as many hours as she
wishes. Lucetta works only 6 hours a day. But she says she loves her job and is happier working at
this job than she would be if she made the same income without working at all. Though this may
sound strange, Lucetta is perfectly rational. Draw a graph showing leisure on the horizontal axis
and income on the vertical axis. Draw a budget line and some indifference curves for Lucetta that
are consistent with Lucetta's words and actions. Explain in words what happens.

Answer: Work for Lucetta is desirable on average but undesirable at the margin when she is
working 6 hours a day. The diagram will work if you draw a U-shaped indifference curve tangent
to her budget line at 6 hours. Make sure that this indifference curve intersects the horizontal line
through her consumption choice somewhere to the right of her choice but to the left of where she
doesn't work at all.

Chapter 10

True-False   Intertemporal Choice

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 71   Discrimination Index: 40
Correct Answer: True

10.1   An increase in the interest rate can not make a lender who satisfies WARP become a borrower.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 61   Discrimination Index: 67
Correct Answer: True

10.2   If the real interest rate is positive, then a unit of future consumption can be had for the sacrifice of less than one unit of current consumption.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 23
Correct Answer: False

10.3   The real interest rate is the interest rate that one receives net of brokerage costs or fees imposed by financial intermediaries.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 84   Discrimination Index: 8
Correct Answer: True

10.4   An increase in the interest rate will necessarily result in a decrease in the present value of a given stream of positive incomes.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 20
Correct Answer: True

10.5   In a graph that has current consumption on the horizontal axis and future consumption on the vertical axis, the horizontal intercept of the budget line is the present value of all one's income in the two periods.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 78   Discrimination Index: 10
Correct Answer: True

10.6   If a consumer can borrow and lend at the same interest rate, then he can exactly afford a consumption plan if the present value of his consumption equals the present value of his income.

Topic: Intertemporal Choice   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 24
Correct Answer: False

10.7   It would be a mistake to choose the investment that maximizes the present value of your income stream unless you planned to spend your entire wealth in the current time period.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 33   Discrimination Index: 0
Correct Answer: False

10.8   If the interest rate at which you can borrow is higher than the interest rate at which you can lend, your budget for current and future consumption is still a convex set.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

10.9   If apples today are perfect substitutes for bananas today, then apples today must also be perfect substitutes for bananas tomorrow.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 55   Discrimination Index: 6
Correct Answer: True

10.10   Isaiah is a net borrower when the interest rate is 5% and a net saver when the interest rate is 25%. An increase in the interest rate from 5% to 25% may make Isaiah worse off.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 33   Discrimination Index: 15
Correct Answer: False

10.11   If the interest rate is less than the inflation rate, a rational person will never save money.

Topic: Intertemporal Choice
% Correct Responses: 87
Correct Answer: False

Difficulty: 0
Discrimination Index: 13

10.12 An increase in the interest rate can make a utility-maximizing lender become a borrower.

Topic: Intertemporal Choice
% Correct Responses: 56
Correct Answer: False

Difficulty: 1
Discrimination Index: 26

10.13 The intertemporal budget constraint for a consumer can be expressed by setting the present value of her lifetime consumption equal to the future value of her endowment.

Topic: Intertemporal Choice
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

10.14 The nominal interest rate is 5% and the inflation rate is 6%. A rational consumer will not choose to save.

Topic: Intertemporal Choice
% Correct Responses: 70
Correct Answer: False

Difficulty: 1
Discrimination Index: 27

10.15 If the inflation rate doubles and the nominal interest rate remains constant, the real interest rate must be halved.

Topic: Intertemporal Choice
% Correct Responses: 79
Correct Answer: True

Difficulty: 1
Discrimination Index: 13

10.16 If the nominal interest rate is 3% and if prices fall by 2% per year, then the real rate of interest is approximately 5%.

Topic: Intertemporal Choice
% Correct Responses: 79
Correct Answer: True

Difficulty: 1
Discrimination Index: 13

10.17 If the nominal interest rate is 4% and if prices fall by 4% per year, then the real rate of interest is approximately 8%.

Topic: Intertemporal Choice

% Correct Responses: 73

Correct Answer: False

Difficulty: 1

Discrimination Index: 35

10.18   A utility maximizing consumer would not choose the investment that maximizes the present value of her income stream unless she planned to spend her entire wealth in the first period.

Topic: Intertemporal Choice

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

10.19   Susan is a net borrower when the interest rate is 10% and a net saver when the interest rate is 20%. A decrease in the interest rate from 20% to 10% may make Susan worse off.

Topic: Intertemporal Choice

% Correct Responses: 0

Correct Answer: False

Difficulty: 1

Discrimination Index: 0

10.20   A newspaper article claims that more students are choosing $1-year$ MBA programs instead of $2-year$ programs because the $2-year$ programs no longer guarantee a well-paid job. If the length of your MBA program doesn't matter to employers, and you take a job right after completing your MBA, the present value of your lifetime earnings is tbe the same whether you take a $1-year$ or $2-year$ program.

Topic: Intertemporal Choice

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

10.21   If the interest rate is 5% and will be 5% forever, the present value of an income stream consisting of $10 a year paid to you on February 11 of every year, starting right now, is $210.

Topic: Intertemporal Choice

% Correct Responses: 42

Correct Answer: B

Difficulty: 3

Discrimination Index: 13

10.1   If current and future consumption are both normal goods, an increase in the interest rate will necessarily:

(a) cause savers to save more.

(b) cause borrowers to borrow less.

(c) reduce everyone's current consumption.

(d) make everyone worse off.

(e) none of the above.

Topic: Intertemporal Choice

% Correct Responses: 24

Correct Answer: A

Difficulty: 2

Discrimination Index: 19

10.2   Harvey Habit has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$ where c_1 and c_2 are his consumption in periods 1 and 2 respectively. Harvey earns \$189 in period 1 and he will earn \$63 in period 2. Harvey can borrow or lend at an interest rate of 10%. There is no inflation.

(a) Harvey will save 60.

(b) Harvey will borrow 60.

(c) Harvey will neither borrow nor lend.

(d) Harvey will save 124.

(e) None of the above.

Topic: Intertemporal Choice

% Correct Responses: 24

Correct Answer: A

Difficulty: 2

Discrimination Index: 19

10.3   Harvey Habit has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$ where c_1 and c_2 are his consumption in periods 1 and 2 respectively. Harvey earns \$168 in period 1 and he will earn \$105 in period 2. Harvey can borrow or lend at an interest rate of 10%. There is no inflation.

(a) Harvey will save 30.

(b) Harvey will borrow 30.

(c) Harvey will neither borrow nor lend.

(d) Harvey will save 133.

(e) None of the above.

Topic: Intertemporal Choice   Difficulty: 3
% Correct Responses: 23   Discrimination Index: 21
Correct Answer: D

10.4   *O. B.* Kandle will live for only two periods. In the first period he will earn \$100,000. In the second period he will retire and live on his savings. Mr. Kandle has a Cobb-Douglas utility function $U(c_1, c_2) = c_1^2 c_2$ where c_1 is his period 1 consumption and c_2 is his period 2 consumption. The real interest rate is r.

(a) If the interest rate rises, Mr. Kandle will save more.

(b) If the interest rises, Mr. Kandle will save less.

(c) The effect of the interest rate is ambiguous, but we can tell that he will arrange to consume the same amount in each period.

(d) The change in the interest rate won't affect his saving.

(e) None of the above.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.5   Suppose that a person can borrow and lend at an interest rate of 10 percent. But there is a 5% rate of inflation and one has to pay an income tax of 30 % on all interest income. If you borrow money, you can deduct interest as an expense. Where current consumption is on the horizontal axis and future consumption is on the vertical axis:

(a) the budget line will have a kink at the point of no saving or lending.

(b) the budget line will be a straight line with a slope of about -1.02.

(c) the budget line will be a straight line with a slope of about -1.05.

(d) the budget line will be a straight line with a slope of about -1.35.

(e) None of the above.

Topic: Intertemporal Choice   Difficulty: 3
% Correct Responses: 26   Discrimination Index: 22
Correct Answer: B

10.6   For every two boxes of strawberries that she consumes, Millicent insists on having one pitcher of cream. She does not, however, insist on consuming the same amount every week. Her utility function is $U = min\{s_1, 2c_1\}min\{s_2, 2c_2\}$ where s_1 and s_2 are the number of boxes of strawberries she consumes this week and next week and c_1 and c_2 are the number of pitchers of cream she consumes this week and next. Strawberries cost \$2 a box and cream costs \$1 a pitcher. She has a present value of \$100 to spend on these goods in the next two weeks. The weekly interest rate is 1%. How many boxes of strawberries will she consume this week?

(a) 10

(b) 20

(c) 22

(d) 14.1

(e) 6.06

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.7   Roger's utility function is $U = min\{a_1, a_2\}min\{b_1, b_2\}$ where a_1 and a_2 are the number of piano lessons he consumes this year and next and b_1 and b_2 are the number of ice skating lessons he consumes this year and next. The price of piano lessons is \$10 each and the price of ice skating lessons is \$4 each. The prices won't change, but the interest rate is 7%. If Roger consumes 20 piano lessons this year, how many ice-skating lessons will he consume next year?

(a) 50

(b) 20

(c) 40

(d) 30

(e) There is not enough information for us to tell.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 21   Discrimination Index: 48
Correct Answer: B

10.8   If a consumer views a unit of consumption in period 1 as a perfect substitute (one-for-one) for a unit of consumption in period 2 and if the real interest rate is positive, the consumer will:

(a) consume only in period 1.

(b) consume only in period 2.

(c) consume equal amounts in each period.

(d) consume more in period 1 than in period 2 if income elasticity exceeds 1, else would consume more in period 2 than in period 1.

(e) equalize expenditures but not consumption in the two periods.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 66   Discrimination Index: 39
Correct Answer: A

10.9   If the price level increases by 80% in one year, then for the real rate of interest to be 10%, the nominal rate of interest would have to be:

(a) 98%.

(b) 70%.

(c) 18%.

(d) 88%.

(e) 72%.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 32
Correct Answer: A

10.10   Kenny Kink's utility function is $u(c_1, c_2) = min\{c_1, c_2\}$, where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He earns \$200 in period 1 and \$220 in period 2. Kenny can borrow and lend at an interest rate of 10 percent, and there is no inflation. The number of dollars that Kenny spends on consumption in the first period must be:

(a) more than 200, but less than 220.

(b) exactly 200.

(c) more than 220.

(d) exactly 180.

(e) more than 180, but less than 200.

Topic: Intertemporal Choice

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

10.11   The nominal interest rate is 5% and the inflation rate is 6%. A rational consumer:

(a) will not save since the real interest rate is negative.

(b) will save less than 1% of her income.

(c) will save the same amount regardless of the inflation rate, only the nominal interest rate matters.

(d) might save despite the negative real interest rate.

(e) will necessarily save less if the inflation rate rises and the nominal interest rate does not change.

Topic: Intertemporal Choice

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 1

Correct Answer: A

10.12   If the real rate of interest is 8% and the nominal rate of interest is 28%, then the rate of inflation must be about (pick the closest number):

(a) 36%.

(b) 24.26%.

(c) 3.50%.

(d) 18.52%.

(e) 23 %.

Topic: Intertemporal Choice

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 1

Correct Answer: A

10.13   If the real rate of interest is 5% and the nominal rate of interest is 31%, then the rate of inflation must be about (pick the closest number):

(a) 36%.

(b) 27.26%.

(c) 6.20%.

(d) 24.76%.

(e) 29 %.

Topic: Intertemporal Choice   Difficulty: 3
% Correct Responses: 39   Discrimination Index: 36
Correct Answer: A

10.14   In an isolated mountain village, the only crop is corn. Villagers plan for two time periods. In the first time period each villager will harvest 100 bushels. In the second time period, no corn will be harvested. There is no trade with the rest of the world and no stocks of corn remain from before the first period. Corn can be stored from one time period to the next, but rats eat 25% of what is stored. The villagers all have Cobb-Douglas utility functions $U(C_1, C_2) = C_1 C_2$ and can allocate their own corn between consumption and storage as they wish. If the introduction of cats to the village reduces the rats' predations to 10% of what is stored:

(a) consumption in the first time period will not change.

(b) villagers will consume 5% more corn in each time period.

(c) consumption in the first time period will increase, but by less than 5%.

(d) consumption in the second time period would not change.

(e) consumption in the first time period will decrease.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 26   Discrimination Index: 53
Correct Answer: B

10.15   Minnie has income $300 in period 1 and will have income $625 in period 2. Her utility function is $U(c_1, c_2) = c_1^{0.80} c_2^{0.20}$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. The interest rate is 0.25. If she unexpectedly won a lottery which pays its prize in period 2 so that her income in period 2 would be $1,250 and her income in period 1 would remain $300, then her consumption in period 1 would:

(a) double.

(b) increase by the amount 400.

(c) increase by the amount 150.

(d) stay constant.

(e) increase by the amount 120.

Topic: Intertemporal Choice

Difficulty: 2

% Correct Responses: 26

Discrimination Index: 53

Correct Answer: B

10.16 Heidi has income \$500 in period 1 and will have income \$625 in period 2. Her utility function is $U(c_1, c_2) = c_1^{0.20}c_2^{0.80}$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. The interest rate is 0.25. If she unexpectedly won a lottery which pays its prize in period 2 so that her income in period 2 would be \$1,250 and her income in period 1 would remain \$500, then her consumption in period 1 would:

(a) double.

(b) increase by the amount 100.

(c) increase by the amount 250.

(d) stay constant.

(e) increase by the amount 50.

Topic: Intertemporal Choice

Difficulty: 2

% Correct Responses: 29

Discrimination Index: 26

Correct Answer: E

10.17 Holly's utility function is $U(c_1, c_2) = c_1^{1/2} + 0.87c_2^{1/2}$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. In period 2, her income is 2 times as large as her income in period 1. At what interest rate will she choose to consume the same amount in period 2 as in period 1? (Choose the closest answer.)

(a) 0.30

(b) 0.08

(c) 0.23

(d) 0

(e) 0.15

Topic: Intertemporal Choice

Difficulty: 2

% Correct Responses: 29

Discrimination Index: 26

Correct Answer: E

10.18 Linda's utility function is $U(c_1, c_2) = c_1^{1/2} + 0.95c_2^{1/2}$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. In period 2, her income is 4 times as large as her income in period 1. At what interest rate will she choose to consume the same amount in period 2 as in period 1? (Choose the closest answer.)

(a) 0.20

(b) 0.03

(c) 0.08

(d) 0

(e) 0.05

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 32
Correct Answer: B

10.19   Will Wisp will live for exactly two periods. His utility function is $U(c_1, c_2) = c_1 c_2$ where c_1 is consumption in period 1 and c_2 is consumption in period 2. He will have no income in period 2. His income in period 1 is 80,000. If the interest rate rises from 10% to 12%:

(a) his savings will increase by 2% and his consumption in period 2 will increase.

(b) his savings will not change, but his consumption in period 2 will increase by 800.

(c) his consumption in both periods will increase.

(d) his consumption in both periods will decrease.

(e) his consumption in period 1 will decrease by r% and his consumption in period 2 will increase.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 32
Correct Answer: B

10.20   Will Wisp will live for exactly two periods. His utility function is $U(c_1, c_2) = c_1 c_2$ where c_1 is consumption in period 1 and c_2 is consumption in period 2. He will have no income in period 2. His income in period 1 is 30,000. If the interest rate rises from 10% to 11%:

(a) his savings will increase by 1% and his consumption in period 2 will increase.

(b) his savings will not change, but his consumption in period 2 will increase by 150.

(c) his consumption in both periods will increase.

(d) his consumption in both periods will decrease.

(e) his consumption in period 1 will decrease by r% and his consumption in period 2 will increase.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 24   Discrimination Index: 21
Correct Answer: B

10.21   Peregrine consumes $(700, 880)$ and earns $(600, 990)$. If the interest rate is 0.10, the present value of his endowment is:

(a) 1,590.

(b) 1,500.

(c) 1,580.

(d) 3,150.

(e) 3,750.

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 24

Discrimination Index: 21

Correct Answer: B

10.22 Peregrine consumes $(1,200;1,080)$ and earns $(600;1,800)$. If the interest rate is 0.20, the present value of his endowment is:

(a) 2,400.

(b) 2,100.

(c) 2,280.

(d) 4,620.

(e) 5,220.

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 69

Discrimination Index: 39

Correct Answer: B

10.23 Molly has income \$400 in period 1 and income \$600 in period 2. Her utility function is $c_1^a c_2^{1-a}$, where $a = 0.40$ and the interest rate is 0.20. If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would:

(a) double.

(b) increase by 160.

(c) increase by 80

(d) stay constant.

(e) increase by 400.

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 69

Discrimination Index: 39

Correct Answer: B

10.24 Molly has income \$600 in period 1 and income \$230 in period 2. Her utility function is $c_1^a c_2^{1-a}$, where $a = 0.20$ and the interest rate is 0.15. If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would:

(a) double.

(b) increase by 120.

(c) increase by 60

(d) stay constant.

(e) increase by 600.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.25   Mr. O.B. Kandle has a utility function $c_1 c_2$ where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in Period 2. If he had an income of 80,000 in period 1 and the interest rate increased from 10% to 19%:

(a) his savings would increase by 9% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 3,600.

(c) his consumption in both periods would be increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 19% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.26   Mr. O.B. Kandle has a utility function $c_1 c_2$ where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in Period 2. If he had an income of 60,000 in period 1 and the interest rate increased from 10% to 12%:

(a) his savings would increase by 2% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 600.

(c) his consumption in both periods would be increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 12% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

10.27   Harvey Habit has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 880 in period 1, and 1,320 in period 2, and if the interest rate were 0.20, how much would Harvey choose to spend on bread in period 1?

(a) 1,620

(b) 360

(c) 540

(d) 2,160

(e) 1,080

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

10.28   Harvey Habit has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 645 in period 1, and 860 in period 2, and if the interest rate were 0.15, how much would Harvey choose to spend on bread in period 1?

(a) 1,117.50

(b) 248.33

(c) 372.50

(d) 1,490

(e) 745

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.29   In an isolated mountain village, the harvest this year is 3,000 and the harvest next year will be 1,100. The villagers all have utility functions $U(c_1, c_2) = c_1 c_2$, where c_1 is consumption this year and c_2 is consumption next year. Rats eat 10% of any grain that is stored for a year. How much grain could the villagers consume next year if they consume 1000 bushels of grain this year?

(a) 2,900

(b) 1,800

(c) 4,100

(d) 4,350

(e) 1,200

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.30   In an isolated mountain village, the harvest this year is 4,000 and the harvest next year will be 800. The villagers all have utility functions $U(c_1, c_2) = c_1 c_2$, where c_1 is consumption this year and c_2 is consumption next year. Rats eat 50% of any grain that is stored for a year. How much grain could the villagers consume next year if they consume 1000 bushels of grain this year?

(a) 2,300

(b) 1,500

(c) 4,800

(d) 3,450

(e) 900

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 16   Discrimination Index: 55
Correct Answer: C

10.31   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.80 \, c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 5 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 1.25

(b) 0.13

(c) 0.25

(d) 0

(e) 0.38

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 16 Discrimination Index: 55
Correct Answer: C

10.32 Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.87\ c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 6 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 0.90

(b) 0.08

(c) 0.15

(d) 0

(e) 0.23

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: C

10.33 Samantha Smoothie's utility function is $U(c_1, c_2) = c_1 c_2$ where c_1 is her consumption in period 1 and c_2 is her consumption in period 2. She earns \$200 in period 1 and \$220 in period 2. Samantha can borrow and lend at an interest rate of 10 percent and there is no inflation. The number of dollars that Samantha spends in the second period must be

(a) more than 200 but less than 220.

(b) exactly 220.

(c) more than 220.

(d) exactly 200.

(e) less than 200.

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: B

10.34 I am always indifferent between a unit of consumption today and tomorrow and the interest rate is 5 percent.

(a) My intertemporal indifference curve is horizontal.

(b) My intertemporal indifference curve is a straight line with slope -1.

(c) I will spend all of my current and future income on consumption today.

(d) I will spend 5 percent more on consumption today than on consumption tomorrow.

(e) I will spend 5 percent more on consumption tomorrow than on consumption today.

10.1 Ophelia says "If I could lend money at the rates I must pay to borrow, I would. And if I could borrow money at the rates I receive when I lend, I would again. But forsooth, although I spend, I neither borrow nor lend." Contrary to common belief, Ophelia is entirely rational. Draw a diagram to show how Ophelia's remarks can be consistent with rational behavior and smooth convex preferences if she pays a different interest rate when she borrows than she gets when she lends. Explain what happens in words.

Answer: Ophelia's budget between current and future consumption is kinked at the point where her consumption in each period equals her income. The highest indifference curve to touch her budget touches at the kink. The extensions of each of the lines that meet at the kink pass above this indifference curve for a ways. These lines are the lines she could move along if she could borrow at the lending rate and lend at the borrowing rate, respectively.

10.2 Patience has the utility function $U(c_1, c_2) = c_1^{1/2} + 2c_2^{1/2}$ where c_1 is her consumption in period 1 and c_1 is her consumption in period 2. She will earn 100 units of the consumption good in period 1 and 100 units of the consumption good in period 2. She can borrow or lend at an interest rate of 10%. a) Write an equation that describes Patience's budget. b) If Patience neither borrows nor lends, what will be her marginal rate of substitution between current and future consumption? c) If Patience does the optimal amount of borrowing or saving, what will be the ratio of her period 2 consumption to her period 1 consumption?

Answer: a) $c1 + c2/1.1 = 100 + 100/1.1$. b)2 c) She will consume 4.84 times as much in period 2 as in period 1.

10.3 Buzz is a chicken farmer. His earnings will be 100 this year and 100 next year. He can lend money at an interest rate of 20%. Because of a subsidized loan program for chicken farmers he can borrow money at an interest rate of 10%. No matter what he borrows or lends, his earnings will still be 100 each year. a) If he is not allowed to both borrow and lend, draw a graph showing his budget between consumption this year and consumption next year. Put numerical labels on the vertical and horizontal intercepts of the budget set. b) Suppose that Buzz is allowed to borrow up to the present value of next year's earnings at 10% and is also allowed to make loans. Draw Buzz's budget constraint in this case.

Answer: a) Budget line is kinked at $(100, 100)$. Vertical intercept is 220. Horizontal intercept is $100 + 100/1.1$. b) Budget constraint is a straight line with slope -1.2 passing through horizontal intercept of previous budget line.

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

10.4 Ymir Larson farms near Niffleheim, Minnesota. He works 80 hours a week. He can either grow rutabagas or pigs. Every hour that he spends growing rutabagas gives him $2 of income this year. Every hour that he spends with the pigs this year will add $4 to his income next year. In fact, next year's weekly income will be $100 + 4H$ dollars where H is the number of hours he spends with the pigs this year. Ymir's utility function is $U(c1, c2) = min\{c1, c2\}$ where c1 and c2 are his consumption expenditures this year and next year. Ymir doesn't believe in banks and will neither lend money nor borrow money. a) Draw Ymir's budget line for current and future consumption, labeling key points on it. b) How many hours a week will he choose to spend with the pigs? c) How much money will he spend per week on consumption in each year?

Answer: a)Budget set is bounded by a line from $(0, 420)$ to $(160, 100)$ and a vertical line from $(160, 100)$ to the horizontal axis. b)10 c)170

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

10.5 Luella has to pay an interest rate of 50% to borrow. She only gets an interest rate of 5% if she lends. She is currently endowed with $1000 in period 1 and $1050 in period 2. She considers two alternative investment projects. She can only choose one of them. For project A she would HAVE TO PAY $500 in period 1 and would BE PAID BACK $630 in period 2. For project B, she would BE PAID $500 in period 1 and would HAVE TO PAY BACK $525 in period 2. a) Diagram her budget set if she chooses project A. Also show her budget if she chooses project B. b) If she neither borrows nor lends, which project has the higher present value at the interest rate 50%? Which has the higher present value at an interest rate of 5%? c) Draw indifference curves such that she should choose A. d) With different preferences might she choose B?

Answer: b) B,A d) yes

Topic: Intertemporal Choice   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

10.6 In an isolated peasant village, the only crop is corn. Good harvests alternate with bad harvests. This year the harvest will be 1000 bushels. Next year it will be 150 bushels. There is no trade with the outside world. Corn can be stored, but rats will eat 25% of what is stored in a year. The villagers have the Cobb-Douglas utility function $U(c1, c2) = c1c2$ where c1 is consumption this year and c2 is consumption next year. a) Draw a budget line for the village with this year's consumption on the horizontal axis and next year's consumption on the vertical axis. On your graph show the quantities at which the budget line intercepts the vertical and horizontal axes. b) How much will the villagers consume this year? c) How much will the rats eat? d) How much will the villagers consume next year?

Answer: b)600 c)100 d)450

Chapter 11

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 26
Correct Answer: False

11.1 If the interest rate is 10%, then an asset that returns $1 a year forever is worth $1/1.1.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 88   Discrimination Index: 23
Correct Answer: False

11.2 The interest rate is 6% and there is no inflation. A bond is available that can be redeemed either after one year or after two years. If it is redeemed after one year, the investor gets $106. If it is redeemed after two years, the investor gets $109.18. The investor gets no other payments than what she receives when she redeems the bond. In equilibrium, investors will be willing to pay more than $100 for this bond.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 88   Discrimination Index: 23
Correct Answer: False

11.3 The interest rate is 10% and there is no inflation. A bond is available that can be redeemed either after one year or after two years. If it is redeemed after one year, the investor gets $110. If it is redeemed after two years, the investor gets $112.20. The investor gets no other payments than what she receives when she redeems the bond. In equilibrium, investors will be willing to pay more than $100 for this bond.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 29
Correct Answer: False

11.4 In a perfect asset market, it is known with certainty that an asset will sell for $24 in 1 year. If the annual interest rate is 10%, then the asset will sell for $26.40 right now.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 38
Correct Answer: True

11.5 A consumer who can borrow and lend at the same interest rate should prefer an endowment with a higher present value to an endowment with a lower present value, no matter how he plans to allocate consumption over the course of his life.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 99   Discrimination Index: 7
Correct Answer: True

11.6   If everybody has the same information, then a well-functioning market for assets would, in equilibrium, leave no opportunities for arbitrage.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 33
Correct Answer: False

11.7   Suppose that the cost of cutting down a tree is zero and the tree grows on land that is useless for anything else. The interest rate is constant and the price of lumber does not change. True or false: The optimal time to cut the tree is when the difference between its growth rate and the interest rate is maximized.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 35   Discrimination Index: 0
Correct Answer: True

11.8   According to the theory of asset markets, if the interest rate is constant, then the competitive market price of a bottle of wine will rise at a constant rate per year until it is $consumed--even$ if the amount that wine-drinkers are willing to pay for it does not rise at a constant rate.

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 94   Discrimination Index: 17

Correct Answer: A

11.1 Vincent Smudge's paintings are unappreciated now. Nobody is willing to pay anything to have them on the walls. In 5 years Smudge's work will gain enduring popularity. People will suddenly be willing to pay $1,000 a year to have an original Smudge on their walls and will continue to be willing to do so ever after. If investors realize that this is the case, and if the interest rate is and always will be r, a painting by Smudge will currently be worth about:

(a) $\$(1000/r)[1/(1+r)^4]$.

(b) $\$1000/r - 5000/r$.

(c) $\$1000(1+r)^5$.

(d) $\$1000(1/r)^5$.

(e) $\$200/r$.

Topic: Asset Markets   Difficulty: 1

% Correct Responses: 82   Discrimination Index: 42

Correct Answer: C

11.2 If the interest rate is r and will remain r forever, then a bond that will pay 25 dollars a year forever, starting 1 year from now, is worth how much today?

(a) $25/(1+r)$

(b) $25(1+r)$

(c) $25/r$

(d) $25/(1+r+r^2+...+r^n+...)$

(e) None of the above.

Topic: Asset Markets

Difficulty: 1

% Correct Responses: 82

Discrimination Index: 42

Correct Answer: C

11.3 If the interest rate is r and will remain r forever, then a bond that will pay 70 dollars a year forever, starting 1 year from now, is worth how much today?

(a) $70/(1+r)$

(b) $70(1+r)$

(c) $70/r$

(d) $70/(1+r+r^2+...+r^n+...)$

(e) None of the above.

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 46

Discrimination Index: 42

Correct Answer: B

11.4 If the nominal interest rate is 80% and the rate of inflation is 50%, then the exact real rate of interest is:

(a) 10%.

(b) 20%.

(c) 30%.

(d) 40%.

(e) None of the above.

Topic: Asset Markets

Difficulty: 1

% Correct Responses: 68

Discrimination Index: 38

Correct Answer: C

11.5 The interest rate is 10%. A certain piece of land can be used either for a parking lot, in which case there are no construction costs and it will yield a net return of $5,000 per year forever starting one year from now. Or it can have a house built on it. Building a house would cost $50,000 now. If a house is built on the lot, it will yield a stream of net income equal to $12,000 per year starting one year from now. No other uses are contemplated. The theory of asset markets markets predicts that the lot will:

(a) sell for $120,000 and a house will be built on it.

(b) sell for $50,000 and a parking lot will be built on it.

(c) sell for $70,000 and a house will be built on it.

(d) sell for $13,200 and a house will be built on it.

(e) sell for $80,000 and a parking lot will be built on it.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 72   Discrimination Index: 39
Correct Answer: D

11.6   Today is January 1. The interest rate is 8% and investors are convinced that it will stay at 8% for the next 10 years. A corporate bond comes on the market that for the next 7 years will pay $160 on December 31 to whoever owns the bond on that date. On January 1, 7 years from today, the issuer of the bond will "redeem" the bond by buying it back from the bondholder for $2,000. What should this bond sell for?

(a) $3,120

(b) $2,160

(c) $1,600

(d) $2,000

(e) $2,780

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 40   Discrimination Index: 68
Correct Answer: A

11.7   The interest rate will be 10% for one more year, but a year from now, it will fall to 5% and stay at 5% forever. What is the market value of an investment that is sure to pay $440 a year forever, starting two years from today?

(a) $8,000

(b) $8,800

(c) $4,000

(d) $4,400

(e) $9,000

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 40

Discrimination Index: 68

Correct Answer: A

11.8 The interest rate will be 10% for one more year, but a year from now, it will fall to 5% and stay at 5% forever. What is the market value of an investment that is sure to pay $440 a year forever, starting two years from today?

(a) $8,000

(b) $8,800

(c) $4,000

(d) $4,400

(e) $9,000

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 28

Discrimination Index: 24

Correct Answer: B

11.9 A certain wine costs $3 a bottle to produce. It improves in taste if stored properly for a period of time. When it is newly bottled, people are willing to pay only $2 a bottle to drink it. But the amount that people are willing to pay to drink a bottle of this wine will rise by $3 a year for the next 50 years. Storage costs, not including interest, are $.50 per year. If the interest rate is 5% and it is kept by rational investors, how old will it be when it is drunk and what will be its price at that time?

(a) 50 years old and $152.

(b) 16 years old and $50.

(c) 50 years old and $153.

(d) 20 years old and $63.

(e) 4 years old and $14.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

11.10   The amount people are willing to pay to drink a bottle of a certain certain vintage of wine when it is t years old is $2 + 3t$. It costs $.50 a bottle per year to store this wine. The interest rate is 5%. If the annual cost of storing the wine rises to $1, what will be the effect on the price of this wine when it is consumed and on the length of time for which it is stored before it is consumed?

(a) Both will rise.

(b) Both will fall.

(c) The price will rise and the time for which it is stored will fall.

(d) The price will not change but the time for which it is stored will fall.

(e) The price will rise and the time for which it is stored will stay constant.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 13   Discrimination Index: 26
Correct Answer: D

11.11   You buy a painting for $1280. Its market value will rise by $80 per year for the next 30 years. It is worth $80 a year to you to have it hanging on the wall. The interest rate is 10%. In how many years will you sell it?

(a) 30

(b) immediately

(c) 8

(d) 4

(e) 5

Topic: Asset Markets
% Correct Responses: 84
Correct Answer: D

Difficulty: 3
Discrimination Index: 24

11.12 Art Dreck's paintings are terribly unpopular now. In fact nobody would pay a dime to have one of his paintings on the wall now. But experts believe that 10 years from now there will be a craze for Dreck paintings. The craze will last for 2 years and then nobody will ever want to see a Dreck again. During this 2 year period, people will be willing to pay $1,100 a year to have an original Dreck on the wall. The interest rate is r. If the experts' belief is widely held among investors, today's market value of a Dreck should be about:

(a) $2,200/r$.

(b) $2,200/(1+r)$.

(c) $1,100(1+r)^{10} + 1,100(1+r)^{11}$.

(d) $1,100/(1+r)^{10} + 1,100/(1+r)^{11}$.

(e) $1,100r + 1,100r^2$.

Topic: Asset Markets
% Correct Responses: 65
Correct Answer: B

Difficulty: 2
Discrimination Index: 0

11.13 A large (subterranean) pool of oil lies in a remote region of Ohio. Oil companies have explored this region and know how much oil there is. They have purchased the rights to drill and extract oil when they wish to do so. Because of the extremely forbidding geography and the savagery of the natives, the companies have decided to postpone extraction until the price of oil is higher. The theory of intertemporal arbitrage predicts that the:

(a) companies are behaving irrationally.

(b) price of rights to this oil must rise at the interest rate.

(c) oil companies will not drill unless production costs fall.

(d) price of rights to this oil will stay constant until it pays to extract.

(e) None of the above.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 23
Correct Answer: D

11.14 The interest rate is 10% and will remain so forever. You do not drink wine but are interested in buying some for investment purposes. Assume that there are no transactions costs or storage costs and a certain bottle of wine will be worth $44 one year from now, $50 two years from now, and $61, three years from now. After that it turns to worthless vinegar. How much should you be willing to pay for a bottle? (Pick the closest answer.)

(a) 40

(b) 41.32

(c) 50.86

(d) 45.83

(e) 49.47

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 23
Correct Answer: D

11.15 The interest rate is 10% and will remain so forever. You do not drink wine but are interested in buying some for investment purposes. Assume that there are no transactions costs or storage costs and a certain bottle of wine will be worth $22 one year from now, $28 two years from now, and $35, three years from now. After that it turns to worthless vinegar. How much should you be willing to pay for a bottle? (Pick the closest answer.)

(a) 20

(b) 23.14

(c) 31.32

(d) 26.30

(e) 32.29

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

11.16 Suppose that a dispute in the Persian Gulf halts the sale of oil from Persian Gulf for 1 year. At the same time an important new oil field is found in a place where nobody expected there to be oil. What does economic theory predict will be the effect on the future price of oil to be delivered 2 years from now?

(a) It will fall if the new pool is larger than the stock of oil in the Persian Gulf and rise otherwise.

(b) It will fall.

(c) It will rise unless the new pool can be brought into production before the Persian Gulf supply is resumed.

(d) It will rise.

(e) It will rise if the cost of extraction for the new oil is greater than the cost of extraction in the Gulf, and fall otherwise.

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 65

Discrimination Index: 0

Correct Answer: C

11.17 Bank 1 offers a deal on deposits of $1000 or more. You must leave your money in the bank for 3 years, but Bank 1 will pay you 7% interest for the first year, 7% interest for the second year, and for the third year, it will pay 10% interest. In response, Bank 2 offers a deal that it claims is even better. It also requires you to deposit at least $1,000 and to leave it in the bank for 3 years, but it will pay 10% interest in the first year and then 7% in the second and third years. After 3 years, you can take your money out of either bank and do what you want with it. Both banks compound interest annually. Which of the following is true?

(a) Bank 2 offers a better deal than Bank 1.

(b) Bank 1 offers a better deal than Bank 2.

(c) The two offers are equally valuable.

(d) The offer of Bank 2 becomes relatively more attractive as the size of your initial deposit is larger.

(e) None of the above.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 65   Discrimination Index: 0
Correct Answer: C

11.18   Bank 1 offers a deal on deposits of $1000 or more. You must leave your money in the bank for 3 years, but Bank 1 will pay you 7% interest for the first year, 7% interest for the second year, and for the third year, it will pay 13% interest. In response, Bank 2 offers a deal that it claims is even better. It also requires you to deposit at least $1,000 and to leave it in the bank for 3 years, but it will pay 13% interest in the first year and then 7% in the second and third years. After 3 years, you can take your money out of either bank and do what you want with it. Both banks compound interest annually. Which of the following is true?

(a) Bank 2 offers a better deal than Bank 1.

(b) Bank 1 offers a better deal than Bank 2.

(c) The two offers are equally valuable.

(d) The offer of Bank 2 becomes relatively more attractive as the size of your initial deposit is larger.

(e) None of the above.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 19   Discrimination Index: 40
Correct Answer: E

11.19   If the rate of inflation is greater than the interest rate:

(a) you should consume all of your wealth in the first period.

(b) you are better off keeping your money in a mattress at home (assuming no risk of it being stolen) than at a bank.

(c) you will necessarily consume less this period than you would if the rate of inflation were less than the interest rate.

(d) you will necessarily consume more this period than you would if the rate of inflation were less than the interest rate.

(e) None of the above.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 77   Discrimination Index: 41
Correct Answer: D

11.20   A zero coupon bond is a bond that pays no return until it comes due and then pays the holder of the bond its face value. Suppose that a $1,000, zero coupon bond will come due on January 1, 2010. If the interest rate is 5% and will remain 5% forever, what will this bond be worth on January 1, 1995?

(a) $1,000/0.05$

(b) $1,000/0.05^{15}$

(c) $1,000 + 1,000/15$

(d) $1,000/1.05^{15}$

(e) None of the above.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 77   Discrimination Index: 41
Correct Answer: D

11.21   A zero coupon bond is a bond that pays no return until it comes due and then pays the holder of the bond its face value. Suppose that a $4,000, zero coupon bond will come due on January 1, 2010. If the interest rate is 10% and will remain 10% forever, what will this bond be worth on January 1, 1995?

(a) $4,000/0.10$

(b) $4,000/0.10^{15}$

(c) $4,000 + 4,000/15$

(d) $4,000/1.10^{15}$

(e) None of the above.

Topic: Asset Markets   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 20
Correct Answer: C

11.22   The sum of the terms of the infinite geometric series, 1, 0.98, 0.98^2, 0.98^3,..., is closest to which of the following numbers?

(a) infinity

(b) 1.98

(c) 50

(d) 0.51

(e) 102.04

Topic: Asset Markets

Difficulty: 1

% Correct Responses: 80

Discrimination Index: 20

Correct Answer: C

11.23 The sum of the terms of the infinite geometric series, 1, 0.95, 0.95^2, 0.95^3,..., is closest to which of the following numbers?

(a) infinity

(b) 1.95

(c) 20

(d) 0.51

(e) 105.26

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 32

Discrimination Index: 46

Correct Answer: A

11.24 Ashley, from your workbook, has discovered another wine, Wine D. Wine drinkers are willing to pay 70 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 10 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 75

(b) 70

(c) 100

(d) 770

(e) 91

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 32

Discrimination Index: 46

Correct Answer: A

11.25 Ashley, from your workbook, has discovered another wine, Wine D. Wine drinkers are willing to pay 160 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 20 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 165

(b) 160

(c) 200

(d) 1,760

(e) 191

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 42

Discrimination Index: 18

Correct Answer: A

11.26 Shivers' annual fuel bill for home heating is 1,000 dollars per year. He considers three alternative plans for insulating his house. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 1,000 dollars, Plan B would cost him 1,900 dollars and Plan C would cost him 11,000 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 42

Discrimination Index: 18

Correct Answer: A

11.27 Shivers' annual fuel bill for home heating is 800 dollars per year. He considers three alternative plans for insulating his house. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 800 dollars, Plan B would cost him 1,400 dollars and Plan C would cost him 8,800 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets
% Correct Responses: 80
Correct Answer: D

Difficulty: 2
Discrimination Index: 37

11.28   The price of an antique is expected to rise by 10% during the next year. The interest rate is 13%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 1,000 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique?

(a) 7,692.31

(b) 21,000

(c) 1,000

(d) 33,333.33

(e) 10,000

Topic: Asset Markets
% Correct Responses: 80
Correct Answer: D

Difficulty: 2
Discrimination Index: 37

11.29   The price of an antique is expected to rise by 4% during the next year. The interest rate is 7%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 400 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique?

(a) 5,714.29

(b) 8,400

(c) 400

(d) 13,333.33

(e) 4,000

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 70

Discrimination Index: 37

Correct Answer: A

11.30 A bond has a face value of 4,000 dollars. It will pay 400 dollars in interest at the end of every year for the next 41 years. At the time of the last interest payment, 41 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company will buy back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 4,000

(b) 20,400

(c) 16,400

(d) more than any of the above numbers

(e) less than any of the above numbers

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 70

Discrimination Index: 37

Correct Answer: A

11.31 A bond has a face value of 6,000 dollars. It will pay 600 dollars in interest at the end of every year for the next 50 years. At the time of the last interest payment, 50 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company will buy back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 6,000

(b) 36,000

(c) 30,000

(d) more than any of the above numbers

(e) less than any of the above numbers

Topic: Asset Markets   Difficulty: 0
% Correct Responses: 68   Discrimination Index: 34
Correct Answer: A

11.32   If the interest rate is 7%, and will remain 7% forever, how much would a rational investor be willing to pay for an asset that will pay him 5,350 dollars one year from now, 1,144 dollars two years from now, and nothing at any other time?

(a) 6,000

(b) 5,000

(c) 85,714.29

(d) 48,000

(e) 7,000

Topic: Asset Markets   Difficulty: 0
% Correct Responses: 68   Discrimination Index: 34
Correct Answer: A

11.33   If the interest rate is 15%, and will remain 15% forever, how much would a rational investor be willing to pay for an asset that will pay him 3,450 dollars one year from now, 1,322 dollars two years from now, and nothing at any other time?

(a) 4,000

(b) 3,000

(c) 26,666.67

(d) 64,000

(e) 5,000

Topic: Asset Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

11.34   The interest rate is 10 percent and is expected to stay constant at that level forever. The present discounted value of $50,000 a year forever STARTING TODAY is

(a) $500,000

(b) $550,000

(c) $ infinity

(d) $1 million

(e) $45,454.45

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

11.1   The interest rate is 10% and will remain 10% forever. Suppose that you do not drink wine but are interested in buying it for investment purposes. How much would you be willing to pay for each of the following? (*i*) A bottle of wine that will be worth \$22 a year from now and will then go bad and be worthless. (ii) A bottle of wine that will be worth \$22 a year from now and will rise in value by \$1 a year forever? Explain your answer.

Answer: Both are worth \$20. Each will be sold and drunk in 1 year. The increase in value of \$1 per year on a \$22 bottle of wine is not a high enough rate of return for anyone to want to hold it another year.

Topic: Asset Markets   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

11.2   A certain wine costs \$3 a bottle to produce. The amount that people are willing to pay to drink it t years after it has been bottled is $\$2 + 3t$. Storage costs, not including interest, are \$.50 per year. If the interest rate is 5%, how much would a rational investor be willing to pay for it at the time it is bottled? Explain how you get your answer. Feel free to write formulas for present value calculations without working out the numerical answer if it involves long calculations. (Hint: How long would the wine be kept before it is drunk? At what price would it sell?)

Answer: Wine would be kept for 16 years and sold for \$50. The present value of this is $50/(1.05)^{16}$. From this number we have to subtract the present value of storage costs which is the present value of paying \$.50 a year for 16 years. This is the cost of paying \$.50 a year forever, starting now minus the cost of paying \$.50 a year forever starting in 16 years or $\$.50(1/r)(1 - 1/(1 + r)^{16})$.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

11.3   Suppose that the cost of personal computers falls by 20% per year. To make this problem relatively easy, we will assume that their quality does not change and that computers never wear out. You plan to get one sometime. What is the rational way to decide when to buy one?

Answer: Figure out what it is worth to you to have the computer for one year. Notice that the cost to you of having it is approximately the difference between the price of a computer at the beginning of the year and the price at the end of the year. If the value to you is V and the current price is P, you buy if $V > .2P$. Otherwise you wait. Eventually, $.2P$ will be smaller than V. Then you buy.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

11.4   According to a recent story in the New York Times, the South African gold strike has been costing South African mining companies about $7.5 million per day. Assuming that this number is the value of the gold that was not mined because of the strike, minus the labor costs (and other operating costs) that are saved by shutting down the mines, what is wrong with this calculation?

Answer: The gold that is not mined now will still be there and can be extracted later. The figure that was reached would be the cost if the gold that would have been mined had somehow been destroyed by the strike. The actual costs would be more closely measured by the interest cost of postponement of the net revenues from the gold mines until the strike is settled.

Chapter 12

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

12.1   Of any two gambles, no matter what their expected returns, a risk-averter will choose the one with the smaller variance.

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

12.2   An expected utility maximizer's preferences between two bundles contingent on Event 1 happening must be independent of what he will get if Event 2 happens.

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

12.3   If someone has strictly convex preferences between all contingent commodity bundles, then he or she must be risk averse.

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

12.4   Wilma is not risk averse. She is offered a chance to pay $10 for a lottery ticket that will give her a prize of $100 with probability .06, a prize of $50 with probability .1, and no prize with probability .85. If she understands the odds and makes no mistakes in calculation, she will buy the lottery ticket.

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 91   Discrimination Index: 15
Correct Answer: False

12.5   If Paul is risk-loving and his basketball team has a probability of .5 of winning, then Paul would rather bet $10 on his team than $100. (When Paul bets X, he wins X if his team wins and loses X if his team loses.)

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 70   Discrimination Index: 0
Correct Answer: False

12.6   If the price of insurance goes up, people will become less risk-averse.

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

12.7   A consumer has a von Neumann-Morgenstern utility function of the form $U(c_A, c_B, p_A, p_B) = p_A v(c_A) + p_B v(c_B)$ where p_A and p_B are the probabilities of events A and B and where c_A and c_B are consumptions contingent on events A and B respectively. This consumer must be a risk lover if v is an increasing function.

Topic: Uncertainty
% Correct Responses: 37
Correct Answer: E

Difficulty: 2
Discrimination Index: 38

12.1 Prufrock is risk averse. He is offered a gamble in which with probability 1/4 he will lose $1000 and with probability 3/4, he will win $500.

(a) Since he is risk averse, he will certainly not take the gamble.

(b) Since the expected value of the gamble is positive, he will certainly take the gamble.

(c) If Prufrock's initial wealth is greater than $1,500, then he will certainly take the gamble.

(d) If Prufrock's initial wealth is smaller than $1,500, he will certainly not take the gamble.

(e) Not enough information is given to determine for sure whether he will take the gamble.

Topic: Uncertainty
% Correct Responses: 0
Correct Answer: B

Difficulty: 3
Discrimination Index: 0

12.2 Timmy Qualm's uncle gave him a lottery ticket. With probability 1/2 the ticket will be worth $100 and with probability 1/2 it will be worthless. Let x be Timmy's wealth if the lottery ticket is a winner and y his wealth if it is a loser. Timmy's preferences over alternative contingent commodity bundles are represented by the utility function $U(x, y) = min\{2x - y, 2y - x\}$. He has no risks other than the ticket.

(a) Timmy would sell his lottery ticket for $25 but not for less.

(b) Timmy hates risk so much that he'd be willing to throw away the lottery ticket rather than worry about whether he won.

(c) Timmy satisfies the expected utility hypothesis.

(d) Timmy is misnamed, he is a risk-lover.

(e) None of the above.

12.3 There are two events, 1 and 2. The probability of event 1 is p and the probability of event 2 is $1 - p$. Sally Kink is an expected utility maximizer with a utility function is $pu(c_1) + (1 - p)u(c_2)$ where for any number, x, $u(x) = 2x$ if $x < 1,000$ and $u(x) = 1,000 + x$ if x is greater than or equal to 1,000.

(a) Sally is a risk lover.

(b) Sally will be a risk averter if she is poor but will be a risk lover if she is rich.

(c) Sally will be a risk lover if she is poor but a risk averter if she is rich.

(d) If there is no chance of her wealth exceeding 1,000, then she will take any bet that has positive expected net winnings.

(e) None of the above.

12.4 Socrates owns just one ship. The ship is worth $200 million dollars. If the ship sinks, Socrates loses $200 million. The probability that it will sink is .02. Socrates' total wealth, including the value of the ship is $225 million. He is an expected utility maximizer with von Neuman Morgenstern utility $U(W)$ equal to the square root of W. What is the maximum amount that Socrates would be willing to pay in order to be fully insured against the risk of losing his ship?

(a) $4 million

(b) $2 million

(c) $3.84 million

(d) $4.82 million

(e) $5.96 million

12.5 Buck Columbus is thinking of starting a pinball palace near a large Midwestern university. Buck is an expected utility maximizer with a von Neuman-Morgenstern utility function, $U(W) = 1 - (6,000/W)$ where W is his wealth. Buck's total wealth is $24,000. With probability .2 the palace will be a failure and he'll lose $18,000, so that his wealth will be just $6,000. With probability .8 it will succeed and his wealth will grow to $$x$. What is the smallest value of x that would be sufficient to make Buck want to invest in the pinball palace rather than have a wealth of $24,000 with certainty?

(a) $28,500

(b) $150,000

(c) $96,000

(d) $72,000

(e) $30,000

12.6 Buck Columbus is thinking of starting a pinball palace near a large Midwestern university. Buck is an expected utility maximizer with a von Neuman-Morgenstern utility function, $U(W) = 1 - (5,000/W)$ where W is his wealth. Buck's total wealth is $20,000. With probability .2 the palace will be a failure and he'll lose $15,000, so that his wealth will be just $5,000. With probability .8 it will succeed and his wealth will grow to $$x$. What is the smallest value of x that would be sufficient to make Buck want to invest in the pinball palace rather than have a wealth of $20,000 with certainty?

(a) $23,750

(b) $125,000

(c) $80,000

(d) $60,000

(e) $25,000

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.7   Oskar's preferences over gambles in which the probability of events 1 and 2 are both 1/2 can be represented by the von Neuman-Morgenstern utility function $.5y_1^{.5} + .5y_2^{.5}$ where y_1 is his consumption if event 1 happens and y_2 is his consumption if event 2 happens. A gamble that allows him a consumption of 9 if event 1 happens and 25 if event 2 happens is exactly as good for Oskar as being sure to have an income of:

(a) 12.5.

(b) 9.

(c) 16.

(d) 17.

(e) None of the above.

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

12.8   Mabel and Emil were contemplating marriage. They got to talking. Mabel said that she always acted according to the expected utility hypothesis, where she tried to maximize the expected value of the log of her income. Emil said that he too was an expected utility maximizer, but he tried to maximize the expected value of the square of his income. Mabel said, "I fear we must part. Our attitudes toward risk are too different." Emil said, "Never fear, my dear, the square of income is a monotonic increasing function of the log of income, so we really have the same preferences." Who is right about whether their preferences toward risk are different?

(a) Mabel is right.

(b) Emil is right.

(c) Emil is right about small risks, but wrong about large risks.

(d) Mabel is right about small risks, but wrong about large risks.

(e) They are both wrong.

Topic: Uncertainty

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

12.9 Ronald has \$18,000. But he is forced to bet it on the flip of a fair coin. If he wins he has \$36,000. If he loses he has nothing. Ronald's expected utility function is $.5x^{.5} + .5y^{.5}$ where x is his wealth if heads comes up and y is his wealth if tails comes up. Since he must make this bet, he is exactly as well off as if he had a perfectly safe income of:

(a) \$16,000.

(b) \$15,000.

(c) \$12,000.

(d) \$11,000.

(e) \$9,000.

Topic: Uncertainty

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

12.10 Gary likes to gamble. Donna offers to bet him \$70 on the outcome of a boat race. If Gary's boat wins, Donna would give him \$70. If Gary's boat does not win, Gary would give her \$70. Gary's utility function is $U(c_1, c_2, p_1, p_2) = p_1 c_1^2 + p_2 c_2^2$ where p_1 and p_2 are the probabilities of events 1 and 2 and where c_1 and c_2 are his consumption if events 1 and 2 occur respectively. Gary's total wealth is currently only \$80 and he believes that the probability that he will win the race is .3.

(a) Taking the bet would increase his expected utility.

(b) Taking the bet would reduce his expected utility.

(c) Taking the bet would leave his expected utility unchanged.

(d) There is not enough information to determine whether taking the bet would increase or decrease his expected utility.

(e) The information given in the problem is self-contradictory.

Topic: Uncertainty

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

12.11 Clancy has $1,200. He plans to bet on a boxing match between Sullivan and Flanagan. For $4, he can buy a coupon that pays $10 if Sullivan wins and nothing otherwise. For $6 he can buy a coupon that will pay $10 if Flanagan wins and nothing otherwise. Clancy doesn't agree with these odds. He thinks that the two fighters each have a probability of 1/2 of winning. If he is an expected utility maximizer who tries to maximize the expected value of ln W where ln W is the natural log of his wealth, it would be rational for him to buy:

(a) 50 "Sullivan coupons" and no "Flanagan coupons".

(b) 100 "Sullivan coupons" and no "Flanagan coupons".

(c) 50 "Flanagan coupons" and no "Sullivan coupons".

(d) 100 "Flanagan coupons" and no "Sullivan coupons".

(e) 100 of each kind of coupon.

Topic: Uncertainty

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

12.12 Diego has $6,400. He plans to bet on a soccer game. Team A is a favorite to win. Assume no ties can occur. For $.80 one can buy a ticket that will pay $1 if team A wins and nothing if B wins. For $.20 one can buy a ticket that pays $1 if team B wins and nothing if A wins. Diego thinks the two teams are equally likely to win. He buys tickets so as to maximize the expected value of ln W (the natural log of his wealth). After he buys his tickets, team A loses a star player and the ticket price moves to $.50 for either team. Diego buys some new tickets and sells some of his old ones. The game is then played and team A wins. How much wealth does he end up with?

(a) $5,000

(b) $15,000

(c) $6,400

(d) $8,400

(e) $10,000

Topic: Uncertainty

Difficulty: 1

% Correct Responses: 64

Discrimination Index: 40

Correct Answer: C

12.13 Joe's wealth is \$100 and he is an expected utility maximizer with a von Neumann-Morgenstern utility function $U(W) = W^{1/2}$. Joe is afraid of oversleeping his econ exam. He figures there is only a 1 in 10 chance that he will, but if he does, it will cost him \$100 in fees to the university for taking an exam late. Joe's neighbor, Mary, never oversleeps. She offers to wake him 1 hour before the test, but he must pay her for this service. What is the most that Joe would be willing to pay for this wake-up service?

(a) \$10

(b) \$15

(c) \$19

(d) \$100

(e) \$50

Topic: Uncertainty

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 39

Correct Answer: A

12.14 Portia has waited a long time for her ship to come in and she has concluded that it will arrive today with probability 1/4. If it does come, she will receive \$16. If it doesn't come in today, it never will and she will have zero wealth. She has a von Neumann-Morgenstern utility function equal to the square root of her total income. What is the minimum price at which she would sell the rights to her ship?

(a) 1

(b) 2

(c) $2^{1/2}$

(d) 4

(e) None of the above.

Topic: Uncertainty   Difficulty: 1
% Correct Responses: 57   Discrimination Index: 31
Correct Answer: B

12.15   Harley's current wealth is \$600, but there is a .25 probability that he will lose \$100. Harley is risk neutral. He has an opportunity to buy insurance that would restore his \$100 if he loses it.

(a) Harley would be willing to pay a bit more than \$25 for this insurance.

(b) Harley would be willing to pay up to \$25 for this insurance.

(c) Since Harley is risk neutral, he wouldn't be willing to pay anything for this insurance.

(d) Since Harley's utility function is not specified, we can't tell how much he would be willing to pay for this insurance.

(e) Harley would not be wiling to pay more than \$16.66 for this insurance.

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.16   After graduating, Sallie Handshake's best job offer will either be with a $Big - 8$ accounting firm for \$160,000 a year or as a State Farm agent in Grand Rapids, Michigan for \$40,000 a year. She can increase the probability of the former outcome by studying more, but such studying has its costs. If S is represents her amount of studying (where $S = 0$ is no study and $S = 1$ is all-out effort), her probability of getting the job with a $Big - 8$ firm just equals S. Her utility depends on how hard she studies and her subsequent annual income Y. She tries to maximize the expected value of the von Neuman-Morgenstern utility function $U(S, Y) = Y^{1/2} - 400S^2$. If she chooses S to maximize her expected utility, how much will she study?

(a) $S = .1$

(b) $S = .25$

(c) $S = .5$

(d) $S = .75$

(e) $S = .9$

Topic: Uncertainty
% Correct Responses: 0
Correct Answer: D

Difficulty: 3
Discrimination Index: 0

12.17 Every dollar invested in Safe Sox will yield two dollars for sure. Each dollar invested in Wobbly Umbrellas will yield $8 with probability 1/2 and zero with probability 1/2. An investor has $10,000 to invest in these two companies and her von Neumann-Morgenstern utility function is the expected value of the natural logarithm of the total yield on her investments. If S is the amount of money that she invests in Safe Sox and $10,000 - S$ the amount that she invests in Wobbly Umbrellas, what should S be to maximize her expected utility? (Pick the closest answer.)

(a) $1,111

(b) $3,333

(c) $5,000

(d) $6,667

(e) $9,111

Topic: Uncertainty
% Correct Responses: 47
Correct Answer: A

Difficulty: 2
Discrimination Index: 60

12.18 Billy Pigskin from your workbook has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 16 million dollars. If he is injured, his income will be only $10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 3,610

(b) between 15 million and 16 million.

(c) 100,000.

(d) 7,220

(e) 14,440

Topic: Uncertainty   Difficulty: 2
% Correct Responses: 47   Discrimination Index: 60
Correct Answer: A

12.19   Billy Pigskin from your workbook has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 9 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 2,710

(b) between 8 million and 9 million.

(c) 100,000.

(d) 5,420

(e) 10,840

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.20   Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1-p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/10$. The value of Willy's factory is \$300,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$2x/11$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy:

(a) no insurance since the the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/4 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/3 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/5 of what it would be if there is no flood.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.21   Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1-p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/16$. The value of Willy's factory is \$600,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$3x/18$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy:

(a) no insurance since the the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/9 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/4 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/7 of what it would be if there is no flood.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.22   Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 9,000$, $u(x) = 2x$ and where $u(x) = 9,000 + x$ for x greater than or equal to 9,000.

(a) Sally will be risk averse if her income is less than 9,000 but risk loving if her income is more than 9,000.

(b) Sally will be risk neutral if her income is less than 9,000 and risk averse if her income is more than 9,000.

(c) For bets that involve no chance of her wealth exceeding 9,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 18,000.

(e) None of the above are true.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.23   Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 1,000$, $u(x) = 2x$ and where $u(x) = 1,000 + x$ for x greater than or equal to $1,000$.

(a) Sally will be risk averse if her income is less than 1,000 but risk loving if her income is more than 1,000.

(b) Sally will be risk neutral if her income is less than 1,000 and risk averse if her income is more than 1,000.

(c) For bets that involve no chance of her wealth exceeding 1,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 2,000.

(e) None of the above are true.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

12.24

Pablo's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1 - p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of $\$Z$ or a lottery in which he receives \$3,600 with probability 0.70 and he receives \$12,100 with probability 0.30. Wilbur will choose the sure payment if:

(a) $Z > 5,625$ and the lottery if $Z < 5,625$.

(b) $Z > 4,612.50$ and the lottery if $Z < 4,612.50$.

(c) $Z > 12,100$ and the lottery if $Z < 12,100$.

(d) $Z > 8,862.50$ and the lottery if $Z < 8,862.50$.

(e) $Z > 6,150$ and the lottery if $Z < 6,150$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

12.25

Roger's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1 - p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of $\$Z$ or a lottery in which he receives \$900 with probability 0.80 and he receives \$10,000 with probability 0.20. Wilbur will choose the sure payment if:

(a) $Z > 1,936$ and the lottery if $Z < 1,936$.

(b) $Z > 1,418$ and the lottery if $Z < 1,418$.

(c) $Z > 10,000$ and the lottery if $Z < 10,000$.

(d) $Z > 5,968$ and the lottery if $Z < 5,968$.

(e) $Z > 2,720$ and the lottery if $Z < 2,720$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

12.26 Clancy has \$3,200. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for \$8 that will pay off \$10 each if Sullivan wins. He also finds in another store some coupons that will pay off \$10 if Flanagan wins. The Flanagan tickets cost \$2 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 200 Sullivan tickets and 800 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 100 Sullivan tickets and 400 Flanagan tickets.

(e) Buy 100 Sullivan tickets and 800 Flanagan tickets.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.27   Clancy has $4,800. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $6 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $4 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 400 Sullivan tickets and 600 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 200 Sullivan tickets and 300 Flanagan tickets.

(e) Buy 200 Sullivan tickets and 600 Flanagan tickets.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.28   Tom Cruiser's car is worth $100,000. But Tom is careless and leaves the top down and the keys in the ignition. Consequently his car will be stolen with probability .5. If it is stolen he will never get it back. Tom has $100,000 in other wealth and his von Neumann-Morgenstern utility function for wealth is $u(w) = ln(w)$. Suppose that Tom can buy K worth of insurance at a price of $.6K$. How much insurance will Tom buy?

(a) $0.

(b) $100,000.

(c) more than $0 but less than $50,000.

(d) more than $50,000 but less than $100,000.

(e) exactly $50,000.

12.1   Gaston Gourmand loves good food. Due to an unusual ailment, he has a probability of 1/4 of losing his sense of smell, which would greatly reduce his enjoyment of food. Gaston finds an insurance company that will sell him "insurance" where he gets \$$3x$ if he loses his smell and pays \$$x$ if he doesn't. He can also buy "negative insurance" where he pays \$$3x$ if he loses his sense of smell and gets x dollars if he doesn't. Gaston says, "Money will be only half as important to me if I lose my sense of smell." If we look at his expected utility function, we see what he means. Where c_1 is his consumption if he retains his sense of smell and c_2 is his income if he loses his sense of smell, Gaston has the expected utility function $U(c_1, c_2) = 3/4c_1^{1/2} + 1/8c_2^{1/2}$. What insurance should he buy?

Answer: Negative insurance so that his wealth is 4 times as large if he doesn't lose his smell than if he does.

12.2   Oliver takes his wealth of \$1000 to a casino. He can bet as much as he likes on the toss of a coin, but the "house" takes a cut. If Oliver bets \$$x$ on heads, then if heads comes up, he gets \$$.8x$, and if tails comes up he pays \$$x$. Similarly if he bets \$$x$ on tails and if tails comes up, he wins \$$.8x$, and if heads comes up he pays \$$x$. Draw a graph with dollars contingent on heads and dollars contingent on tails on the two axes. Show Oliver's budget constraint. Oliver is an expected utility maximizer with the utility function $U(h, t) = 1/2h^2 + 1/2t^2$ where h is his wealth if heads comes up and t is his wealth if tails comes up. Draw the highest indifference curve that Oliver can reach with his budget. What bets if any does he make?

Answer: Budget kinks at $(1000, 1000)$; it meets the axes at $(1800, 0)$ and $(0, 1800)$. Indifference curves are quarter circles. Oliver will gamble his entire wealth, either betting it all on heads or all on tails.

12.3   Linus Piecewise is an expected utility maximizer. There are two events, H and T, which each have probability 1/2. Linus's preferences over lotteries in which his wealth is h if Event H happens and t if Event T happens are representable by the utility function $U(h, t) = u(h)/2 + u(t)/2$. The function u takes the following form. For any x, $u(x) = x$ if $x < 100$ and $u(x) = 100 + x/2$ if x is greater than or equal to 100. Draw a graph showing the indifference curves for Linus that pass through a) the point $(50, 0)$ b) the point $(50, 100)$ c) the point $(100, 100)$ d) the point $(150, 100)$.

Answer: Curve a is a line with slope -1. Curve b has 3 linear segments: a line $from(100, 50)$ to $(50, 100)$, a line with slope -2 to the left of $(50, 100)$, and a line with slope $-1/2$ to the right of $(100, 50)$. Curve c has two segments: a line with slope -2 going to the left and a line with slope $-1/2$ to the right of $(100, 100)$. Curve d has 3 segments, a line from $(150, 100)$ to $(100, 150)$, and lines from $(150, 100)$ to $(200, 0)$ and from $(0, 200)$ to $(100, 150)$.

12.4   The "certainty equivalent" of a gamble is defined to be an the amount of money which if you were promised it with certainty would be indifferent to the gamble. a) If an expected utility maximizer has a von Neuman Morgenstern utility function $U(W) = W^{1/2}$ (where W is wealth) and if the probability of events 1 and 2 are both 1/2, write a formula for the certainty equivalent of a gamble that gives you x if event 1 happens and y if event 2 happens. b) Generalize your formula in part (a) to the case where the probability of event 1 is p and the probability of event 2 is $1 - p$. c) Generalize the formula in part (a) to the case where $U(W) = W^a$ for $a > 0$.

Answer: a) certainty equivalent is $(1/2x^{1/2} + 1/2y^{1/2})^2$ b) $(px^{1/2} + (1-p)y^{1/2})^2$ c) $(1/2x^a + 1/2y^a)^{\{1/a\}}$

Chapter 13

Topic: Risky Assets   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

13.1   If two assets have the same expected rate of return but different variances, a risk-averse investor should always choose the one with the smaller variance, no matter what other assets she holds.

Topic: Risky Assets   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

13.2   If the returns on two assets are negatively correlated, then a portfolio that contains some of each will have less variance in its return per dollar invested than either asset has by itself.

Topic: Risky Assets   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

13.3   If mean is plotted on the horizontal axis and variance on the vertical, then indifference curves for a risk-averter must slope upwards and to the right.

Topic: Risky Assets   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

13.4   If you invest half your money in a risk-free asset and half your money in a risky asset such that the standard deviation of the return on the risky asset is s, then the standard deviation of the return on your investment portfolio is $s/2$.

Topic: Risky Assets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

13.1   Firm A sells lemonade and firm B sells hot chocolate. If you invest $100 if Firm A, in one year you will get back $(30+ T)$ where T is the average temperature (Fahrenheit) during the summer. If you invest $100 in firm B, in one year you will get back $(150-T)$ where T is the average temperature during the summer. The expected value of T is 70 and the standard deviation of T is 10. If you invest $50 in Firm A and $50 in Firm B, what is the standard deviation of your return on your investment?

(a) 10

(b) 20

(c) 5

(d) 0

(e) None of the above.

Topic: Risky Assets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

13.2   A risk-free asset is available at 5% interest. Another asset is available with a mean rate of return of 15%, but with a standard deviation of 5%. An investor is considering an investment portfolio consisting of some of each stock. On a graph with standard deviation on the horizontal axis and mean on the vertical axis, the budget line that expresses the alternative combinations of mean return and standard deviation possible with portfolios of these assets is:

(a) a straight line with slope 2.

(b) a straight line with slope -3.

(c) a straight line with increasing slope as you move left.

(d) a straight line with slope -1.

(e) a straight line with slope $-1/3$.

Topic: Risky Assets

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

13.3 Marvin is an expected utility maximizer. He chooses his portfolio so as to maximize the expected value of $2,000,000x - x^2$. If m is the mean of Marvin's income and s is the standard deviation, we can write Marvin's income as a function of mean and standard deviation in the following way:

(a) $U = 2,000,000m - s^2$.

(b) $U = 2,000,000m - s$.

(c) $U = m - s/2,000,000$.

(d) $U = 2,000,000 + s$.

(e) None of the above.

Topic: Risky Assets

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

13.4 You have been hired as a portfolio manager for a stock brokerage. Your first job is to invest $100,000 in a portfolio of two assets. The first asset is a "safe asset" with a sure return of 4% interest. The second asset is a risky asset with a 26% expected rate of return, but the standard deviation of this return is 10%. Your client wants a portfolio with as high a rate of return as possible consistent with a standard deviation no larger than 4%. How much of her money do you invest in the safe asset?

(a) $22,000

(b) $40,000

(c) $64,000

(d) $36,000

(e) $60,000

Topic: Risky Assets

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

13.5   Bill owns an export business. The expected profit from his business is $100,000 a year. For every 1% increase in the value of the Japanese yen relative to the dollar, its profits increase by $20,000. Bill plans to buy one of two firms. One is an import business which returns an expected profit of $70,000. For every 1% increase in the value of the Japanese yen relative to the dollar, the profits of this firm shrink by $5,000. The second is a safe domestic firm which is certain to yield him $70,000 a year. The two firms cost the same. If Bill is risk averse:

(a) he should buy the domestic firm.

(b) he should buy the import firm.

(c) he should buy half of each of these two firms.

(d) it doesn't matter which he buys.

(e) he should buy 80% of the domestic firm and 20% of the import firm.

Topic: Risky Assets

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

13.6   Suppose that Ms. Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 15% and a risky asset with expected rate of return 30%, with standard deviation 5. If she chooses a portfolio with expected rate of return 30%, then the standard deviation of her return on this portfolio will be:

(a) 2.50%.

(b) 8%.

(c) 5%.

(d) 10%.

(e) None of the above.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

13.7   Suppose that Ms. Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 15% and a risky asset with expected rate of return 25%, with standard deviation 5. If she chooses a portfolio with expected rate of return 20%, then the standard deviation of her return on this portfolio will be:

(a) 1.25%.

(b) 5.50%.

(c) 2.50%.

(d) 5%.

(e) None of the above.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

13.8   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 10 with zero standard deviation and one of which gives him an expected rate of return of 30 and has a standard deviation of 5. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is:

(a) 4.

(b) −4.

(c) 2.

(d) −2.

(e) 6.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

13.9   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 15 with zero standard deviation and one of which gives him an expected rate of return of 45 and has a standard deviation of 15. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is:

(a) 2.

(b) −2.

(c) 1.

(d) −1.

(e) 3.

13.1 If you invest \$100 now in firm A, in one year you will get back \$$(30 + T)$ where T is the average temperature during the next summer. If you invest \$100 now in firm B, in one year you will get back \$$(180 - T)$. The expected value of T is 70 and the standard deviation of T is 10. a) Draw a graph showing the combinations of expected return and standard deviation that you can have by dividing \$100 between stock in A and stock in B. (Hint: Expected value has the property that $E(ax + b) = aE(x) + b$ and standard deviation has the property that $SD(ax + b) = [(absolute$ value of a) times $SD(x)] + b$.) b) What is the expected value and standard deviation of the safest investment strategy you can make by this means? (c) What is the highest expected value you can achieve?

Answer: a) The locus includes the line segment from $(S, E) = (0, 105)$ to $(S, E) = (10, 110)$ as well as the line segment from $(0, 105)$ to $(10, 100)$. b)105 and 0 c)110.

Chapter 14

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 63   Discrimination Index: 22
Correct Answer: False

14.1   Consumer's surplus is another name for excess demand.

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 27
Correct Answer: True

14.2   There is a positive consumer surplus when the total amount one pays for something is less than the amount one would be willing to pay rather than do without it altogether.

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 46
Correct Answer: False

14.3   The equivalent variation in income from a tax is the amount of extra income that a consumer would need in order to be as well off after the tax is imposed as he was originally.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

14.4   With quasilinear preferences, the equivalent variation and the compensating variation in income due to a tax are the same.

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 17
Correct Answer: False

14.5   Producer's surplus at price p is the vertical distance between the supply curve and the demand curve at price p.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 84

Discrimination Index: 19

Correct Answer: True

14.6   If somebody is buying 15 units of x and the price of x falls by \$2, then that person's net consumer surplus must increase by at least \$30.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 84

Discrimination Index: 19

Correct Answer: True

14.7   If somebody is buying 15 units of x and the price of x falls by \$4, then that person's net consumer surplus must increase by at least \$60.

Topic: Consumer's Surplus

Difficulty: 1

% Correct Responses: 83

Discrimination Index: 20

Correct Answer: False

14.8   If there is Cobb-Douglas utility, compensating and equivalent variation are the same.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 62

Discrimination Index: 15

Correct Answer: False

14.9   Bernice has the utility function $U(x, y) = min\{x, y\}$. The price of x used to be 3, but rose to 4. The price of y remained at 1. Her income is 12. The price increase was as bad for her as a loss of \$3 in income.

Topic: Consumer's Surplus

Difficulty: 0

% Correct Responses: 73

Discrimination Index: 27

Correct Answer: False

14.10   If there is a price increase for a good that Josephine consumes, her compensating variation is the change in her income that allows her to purchase her new optimal bundle at the original prices.

Topic: Consumer's Surplus

Difficulty: 0

% Correct Responses: 73

Discrimination Index: 27

Correct Answer: False

14.11   If there is a price increase for a good that Elsie consumes, her compensating variation is the change in her income that allows her to purchase her new optimal bundle at the original prices.

Topic: Consumer's Surplus

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

14.12 Bernice's utility function is $U(x, y) = min\{x, y\}$. The price of x used to be 3, but rose to 4. The price of y remained at 1. Her income is 12. She would need an income of \$15 to be able to afford a bundle as good as her old one at the new prices.

Multiple Choice   Consumer's Surplus

14.1 Ella's utility function is $min\{4x, y\}$. If the price of x is 15 and the price of y is 20, how much money would she need to be able to purchase a bundle that she likes as well as the bundle $(x, y) = (5, 8)$?

(a) 92

(b) 198

(c) 190

(d) 235

(e) 47

14.2 Ella's utility function is $min\{2x, y\}$. If the price of x is 15 and the price of y is 10, how much money would she need to be able to purchase a bundle that she likes as well as the bundle $(x, y) = (10, 8)$?

(a) 67

(b) 148

(c) 140

(d) 230

(e) 70

Topic: Consumer's Surplus   Difficulty: 3
% Correct Responses: 33   Discrimination Index: 32
Correct Answer: E

14.3   Reginald is fond of cigars. His utility function is $U(x,c) = x + 10c - .5c^2$ where c is the number of cigars he smokes per week and x is the money that he spends on consumption of other goods. Reginald has \$200 a week to spend. Cigars used to cost him \$1 each, but their price went up to \$2 each. This price increase was as bad for him as losing the following amount of income:

(a) \$5

(b) \$7.25

(c) \$9

(d) \$8

(e) \$8.50

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 62   Discrimination Index: 55
Correct Answer: B

14.4   Sam's utility function is $U(x,y) = 2x + y$ where x is the number of $x's$ he consumes per week and y is the number of $y's$ he consumes per week. Sam has \$200 a week to spend. The price of x is 4. Sam currently doesn't consume any y. Sam has received an invitation to join a club devoted to consumption of y. If he joins the club, Sam can get a discount on the purchase of y. If he belonged to the club he could buy y for \$1 a unit. How much is the most Sam would be willing to pay to join this club?

(a) nothing

(b) \$100 a week

(c) \$50 a week

(d) \$40 a week

(e) None of the above.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 56   Discrimination Index: 77
Correct Answer: A

14.5   Yoram's utility function is $U(x,y) = 2x + 5y$. The price of x is \$4 and the price of y is \$15. Yoram has \$150 a week to spend on x and y. Yoram is offered a chance to join a club of y-consumers. If he joins, he can get y at a price of \$10. What is the most that Yoram would be willing to pay to join the club?

(a) nothing

(b) \$30 a week

(c) \$50 a week

(d) \$75 a week

(e) None of the above.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

14.6   Minnie gets 4 tapes for her birthday, but they are currently useless to her because she doesn't have a tape recorder and she cannot return them for a refund. Her utility function is $U(x,y,z) = x + f(y)z^{.5}$ where z is the number of tapes she has, y is the number of tape recorders she has, and x is the money she has to spend on other stuff. Let $f(y) = 0$ if $y < 1$ and $f(y) = 7$ otherwise. The price of tapes is \$7.99. What is her reservation price for a tape recorder?

(a) 20

(b) 7

(c) 24

(d) 0

(e) None of the above.

Topic: Consumer's Surplus

% Correct Responses: 0

Correct Answer: A

Difficulty: 1

Discrimination Index: 0

14.7 Izaak likes to eat pizza and to fish. The more fishing he does the happier he is, up to 8 hours a day. If he fishes longer than 8 hours he gets a sore back and is less happy than if he hadn't fished at all. For y less than or equal to 8, his utility function is $U(x, y) = x + 4y$ where x is money spent on pizza and y is hours per day spent fishing. His income is $45 a day and he has no expenses other than pizza. The Bureau of Fisheries has just decided to allow people without fishing licenses to fish only 3 hours a day. But if you buy a fishing license, you can fish as many hours as you wish. How much is Izaak willing pay for a license?

(a) $20

(b) $32

(c) $23

(d) $18

(e) 0.

Topic: Consumer's Surplus

% Correct Responses: 0

Correct Answer: A

Difficulty: 1

Discrimination Index: 0

14.8 Izaak likes to eat pizza and to fish. The more fishing he does the happier he is, up to 8 hours a day. If he fishes longer than 8 hours he gets a sore back and is less happy than if he hadn't fished at all. For y less than or equal to 8, his utility function is $U(x, y) = x + 4y$ where x is money spent on pizza and y is hours per day spent fishing. His income is $41 a day and he has no expenses other than pizza. The Bureau of Fisheries has just decided to allow people without fishing licenses to fish only 4 hours a day. But if you buy a fishing license, you can fish as many hours as you wish. How much is Izaak willing pay for a license?

(a) $16

(b) $32

(c) $19

(d) $14

(e) 0.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 26
Correct Answer: D

14.9   Ellsworth's utility function is $U(x,y) = min\{x,y\}$. Ellsworth has \$150 and the price of x and the price of y are both 1. Ellsworth's boss is thinking of sending him to another town where the price of x is 1 and the price of y is 2. The boss offers no raise in pay. Ellsworth, who understands compensating and equivalent variation perfectly, complains bitterly. He says that although he doesn't mind moving for its own sake and the new town is just as pleasant as the old, having to move is as bad as a cut in pay of \$A. He also says he wouldn't mind moving if when he moved he got a raise of \$B. What are A and B?

(a) $A = 50$ $B = 50$

(b) $A = 75$ $B = 75$

(c) $A = 75$ $B = 100$

(d) $A = 50$ $B = 75$

(e) none of the above

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 22   Discrimination Index: 40
Correct Answer: A

14.10   Holly consumes only goods X and Y. Her income is 600 and her utility function is $U(x,y) = max\{x,y\}$ where x is the number of units of X she consumes and y is the number of units of Y she consumes. The price of good Y is 1. The price of good X used to be 1/2, but is now 2. The equivalent variation of this price change for Holly is:

(a) 300.

(b) 600.

(c) 150.

(d) 800.

(e) None of the above.

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 22   Discrimination Index: 40
Correct Answer: A

14.11   Zelda consumes only goods X and Y. Her income is 400 and her utility function is $U(x, y) = max\{x, y\}$ where x is the number of units of X she consumes and y is the number of units of Y she consumes. The price of good Y is 1. The price of good X used to be 1/4, but is now 2. The equivalent variation of this price change for Zelda is:

(a) 300.

(b) 1,200.

(c) 75.

(d) 2,000.

(e) None of the above.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 53   Discrimination Index: 47
Correct Answer: D

14.12   Poindexter's utility function is $U(x, y) = min\{x + 2y, 3x + y\}$ where x is butter and y is guns. If the price of butter is 4 and the price of guns is 5, what would it cost Poindexter to buy the cheapest bundle that he likes as well as 4 units of butter and 3 units of guns?

(a) 31

(b) 32

(c) 29

(d) 28

(e) None of the above.

Topic: Consumer's Surplus

Difficulty: 3

% Correct Responses: 82

Discrimination Index: 41

Correct Answer: D

14.13 Albin has quasilinear preferences and he loves pretzels. His inverse demand function for pretzels is $p(x) = 49 - 6x$, where x is the number of pretzels that he consumes. He is currently consuming 8 pretzels at a price of \$1 per pretzel. If the price of pretzels rises to \$7 per pretzel, the change in Albin's consumer surplus is:

(a) −\$90.

(b) −\$56.

(c) −\$42.

(d) −\$45.

(e) −\$42.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 44

Discrimination Index: 49

Correct Answer: D

14.14 Bernice's preferences can be represented by the utility function, $U(x, y) = min\{x, y\}$. She faces prices, $(2, 1)$, and her income is 12. If prices change to $(3, 1)$, then:

(a) the compensating variation equals the equivalent variation.

(b) the compensating variation is \$2 greater than the equivalent variation.

(c) the compensating variation is \$2 smaller than the equivalent variation.

(d) the compensating variation is \$1 greater than the equivalent variation.

(e) there is not enough information to determine which is larger.

Topic: Consumer's Surplus

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

14.15 At the initial prices, Teodoro is a net seller of apples and a net buyer of bananas. If the price of apples decreases and the price of bananas does not change:

(a) the compensating variation must be negative and the equivalent variation positive.

(b) the compensating variation must be positive and the equivalent variation negative.

(c) both the compensating variation and the equivalent variation must be positive.

(d) both the compensating variation and the equivalent variation must be negative.

(e) the compensating variation must be negative, but the equivalent variation could be of either sign.

Topic: Consumer's Surplus

% Correct Responses: 74

Correct Answer: B

Difficulty: 1

Discrimination Index: 45

14.16   Sam has quasilinear preferences and his demand function for x is $D(p) = 15 - p/3$. The price of x is initially \$15 per unit and increases to \$24 per unit. Sam's change is consumer surplus is the closest to:

(a) -168.

(b) -76.

(c) -27.

(d) 75.

(e) Sam won't consume x at either of the prices.

Topic: Consumer's Surplus

% Correct Responses: 87

Correct Answer: B

Difficulty: 1

Discrimination Index: 30

14.17   Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 65, how much is Sir Plus's net consumer surplus?

(a) 35

(b) 612.50

(c) 1,225

(d) 306.25

(e) 4,550

Topic: Consumer's Surplus

% Correct Responses: 87

Correct Answer: B

Difficulty: 1

Discrimination Index: 30

14.18   Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 75, how much is Sir Plus's net consumer surplus?

(a) 25

(b) 312.50

(c) 625

(d) 156.25

(e) 6,000

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 70   Discrimination Index: 83
Correct Answer: A

14.19   Quasimodo from your workbook has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is his consumption of earplugs and m is money left over to spend on other stuff. If he has \$10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from \$50 to 65, then his net consumer's surplus:

(a) falls by 637.50.

(b) falls by 2,637.50.

(c) falls by 525.

(d) increases by 318.75.

(e) increases by 1,275.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 70   Discrimination Index: 83
Correct Answer: A

14.20   Quasimodo from your workbook has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is his consumption of earplugs and m is money left over to spend on other stuff. If he has \$10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from \$50 to 90, then his net consumer's surplus:

(a) falls by 1,200.

(b) falls by 3,200.

(c) falls by 400.

(d) increases by 600.

(e) increases by 2,400.

Topic: Consumer's Surplus
% Correct Responses: 80
Correct Answer: B

Difficulty: 2
Discrimination Index: 50

14.21   Bernice has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of $13 per week and was paying a price of $5 per pair of earrings, then if the price of earrings rose to $8, the comp ensating variation of that price change (measured in dollars per w week) would be closest to:

(a) $4.33.

(b) $6.50.

(c) $14.

(d) $13.

(e) $12.

Topic: Consumer's Surplus
% Correct Responses: 80
Correct Answer: B

Difficulty: 2
Discrimination Index: 50

14.22   Bernice has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of $11 per week and was paying a price of $3 per pair of earrings, then if the price of earrings rose to $5, the comp ensating variation of that price change (measured in dollars per w week) would be closest to:

(a) $3.67.

(b) $5.50.

(c) $12.

(d) $11.

(e) $10.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 60

Discrimination Index: 45

Correct Answer: A

14.23   If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of $ 12 and was paying a price of $9 for earrings when the price of earrings went up to $14, then the equivalent variation of the price change was:

(a) $4.

(b) $6.

(c) $12.

(d) $2.

(e) $5.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 60

Discrimination Index: 45

Correct Answer: A

14.24   If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of $ 12 and was paying a price of $3 for earrings when the price of earrings went up to $7, then the equivalent variation of the price change was:

(a) $6.

(b) $12.

(c) $24.

(d) $3.

(e) $9.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 70

Discrimination Index: 82

Correct Answer: A

14.25   Lolita, the Holstein cow, has a utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.40, the price of hay is 1, and her income is 3, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 3.18.

(b) 2.60.

(c) 0.18.

(d) 4.68.

(e) 1.68.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 70   Discrimination Index: 82
Correct Answer: A

14.26   Lolita, the Holstein cow, has a utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.10, the price of hay is 1, and her income is 5, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 5.40.

(b) 4.90.

(c) 0.40.

(d) 7.90.

(e) 2.90.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 28   Discrimination Index: 10
Correct Answer: B

14.27   The number of "Quayle in 96" buttons demanded on a certain university campus is given by $D(p) = 100 - p$, where p is the price of buttons measured in pennies. The supply function is $S(p) = p$. The current administration manages to enforce a price ceiling of 40 cents per button. The effect on net consumers' surplus is:

(a) an increase of $5.50.

(b) an increase of $3.50.

(c) no change.

(d) a decrease of $3.50.

(e) a decrease of $5.50.

Topic: Consumer's Surplus

% Correct Responses: 52

Correct Answer: B

Difficulty: 2

Discrimination Index: 27

14.28 Chen's utility function is $U(x,y) = x + 6y - y^2/2$, where x is the number of $x's$ he consumes per week and y is the number of $y's$ he consumes per week. Chen has \$200 a week to spend. The price of x is 1. The price of y is currently \$5 per unit. Chen has received an invitation to join a club devoted to consumption of y. If he joins the club, Chen can get a discount on the purchase of y. If he belonged to the club he could buy y for \$1 a unit. How much is the most Chen would be willing to pay to join this club?

(a) 8

(b) 12

(c) 20

(d) 24

(e) None of the above.

Topic: Consumer's Surplus

% Correct Responses: 52

Correct Answer: B

Difficulty: 2

Discrimination Index: 27

14.29 Peter's utility function is $U(x,y) = x + 10y - y^2/2$, where x is the number of $x's$ he consumes per week and y is the number of $y's$ he consumes per week. Peter has \$200 a week to spend. The price of x is 1. The price of y is currently \$3 per unit. Peter has received an invitation to join a club devoted to consumption of y. If he joins the club, Peter can get a discount on the purchase of y. If he belonged to the club he could buy y for \$1 a unit. How much is the most Peter would be willing to pay to join this club?

(a) 2

(b) 16

(c) 18

(d) 32

(e) None of the above.

Topic: Consumer's Surplus   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

14.1 The "indirect utility function" for a consumer with a utility function $U(x1, x2)$ is defined to be a function $V(p1, p2, M)$ such that $V(p1, p2, M)$ is the maximum of $U(x1, x2)$ subject to the constraint that the consumer can afford $(x1, x2)$ at the prices $(p1, p2)$ with income M. a) Find the indirect utility function for someone with the utility function $U(x, y) = 2x + y$. b) Find the indirect utility function for someone with the utility function $U(x, y) = min\{2x, y\}$. Explain how you got your answers.

Answer: a) $M/(min\{p1/2, p2\}$. b) $M/(2p1 + p2)$.

Chapter 15

Topic: Market Demand
% Correct Responses: 86
Correct Answer: True

Difficulty: 1
Discrimination Index: 5

15.1 The inverse demand curve $P(x)$ for a good x measures the price per unit at which the quantity x would be demanded.

Topic: Market Demand
% Correct Responses: 37
Correct Answer: False

Difficulty: 2
Discrimination Index: 0

15.2 In general, aggregate demand depends only on prices and total income and not on income distribution.

Topic: Market Demand
% Correct Responses: 85
Correct Answer: True

Difficulty: 1
Discrimination Index: 20

15.3 If consumer 1 has the demand function $x_1 = 1,000 - 2p$ and consumer 2 has the demand function $x_2 = 500 - p$, then the aggregate demand function for an economy with just these two consumers would be $x = 1,500 - 3p$ for $p < 500$.

Topic: Consumer's Surplus
% Correct Responses: 82
Correct Answer: True

Difficulty: 1
Discrimination Index: 23

15.4 If a consumer has to pay his reservation price for a good, then he gets no consumer surplus from purchasing it.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

15.5 If a price changes, then changes in consumption at the intensive margin are changes that happen because consumers alter the amounts that they consume, but do not either stop consuming or start consuming the good.

Topic: Elasticity   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 25
Correct Answer: False

15.6   If the demand curve is a linear function of price, then the price elasticity of demand is the same at all prices.

Topic: Elasticity   Difficulty: 2
% Correct Responses: 67   Discrimination Index: 21
Correct Answer: False

15.7   If the demand function is $q = 3m/p$, where m is income and p is price, then the absolute value of the price elasticity of demand decreases as price increases.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 48   Discrimination Index: 10
Correct Answer: False

15.8   If the elasticity of demand curve for millet is -0.50 at all prices higher than the current price, we would expect that when bad weather reduces the size of the millet crop, total revenue of millet producers will fall.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 48   Discrimination Index: 10
Correct Answer: False

15.9   If the elasticity of demand curve for buckwheat is -0.75 at all prices higher than the current price, we would expect that when bad weather reduces the size of the buckwheat crop, total revenue of buckwheat producers will fall.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 47
Correct Answer: False

15.10   If the equation for the demand curve is $q = 50 - 1p$, then the ratio of marginal revenue to price is constant as price changes.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 47
Correct Answer: False

15.11   If the equation for the demand curve is $q = 40 - 2p$, then the ratio of marginal revenue to price is constant as price changes.

Topic: Market Demand   Difficulty: 3
% Correct Responses: 36   Discrimination Index: 0
Correct Answer: True

15.12   If a rational consumer must consume either zero or one unit of a good, then an increase in the price of that good with no change in income or in other prices can never lead to an increase in the consumer's demand for it.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

15.13   In the reservation price model, either aggregate demand is zero or everyone demands one unit of the good.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

15.14   The Laffer effect occurs only if there is a backward-bending labor supply curve.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 64   Discrimination Index: 4
Correct Answer: True

15.15   If the demand curve were plotted on graph paper with logarithmic scales on both axes, then its slope would be the elasticity of demand.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 71   Discrimination Index: 8
Correct Answer: True

15.16   The market demand curve is simply the horizontal sum of the individual demand curves.

Topic: Market Demand
% Correct Responses: 72
Correct Answer: False

Difficulty: 1
Discrimination Index: 15

15.17   The demand curve is inelastic for inferior goods and elastic for normal goods.

Topic: Market Demand
% Correct Responses: 56
Correct Answer: True

Difficulty: 1
Discrimination Index: 20

15.18   Marginal revenue is equal to price if the demand curve is horizontal.

Topic: Market Demand
% Correct Responses: 45
Correct Answer: False

Difficulty: 2
Discrimination Index: 30

15.19   If the amount of money that people are willing to spend on a good stays the same when its price doubles, then demand for that good must have a price elasticity of demand smaller in absolute value than one.

Topic: Elasticity
% Correct Responses: 38
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

15.20   If the price elasticity of demand for a normal good is constant, then a price increase of 10 cents will reduce demand by more if the original price is $1 than if the original price is $2.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

15.21   The demand function for potatoes has the equation $q = 1,000 - 10p$. As the price of potatoes changes from 10 to 20, the absolute value of the price elasticity of demand for potatoes increases.

Topic: Elasticity
% Correct Responses: 62
Correct Answer: True

Difficulty: 1
Discrimination Index: 60

15.22   If the demand curve for a good is given by the equation $q = 2/p$, where q is quantity and p is price, then at any positive price, the elasticity of demand will be -1.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: True

Difficulty: 2
Discrimination Index: 0

15.23   If consumer 1 has the inverse demand function given by $p = 15 - x$ and consumer 2 has inverse demand function given by $p = 20 - 3x$, then the total quantity demanded by the two consumers is $x = 7$ when the price, p, is 11.

Topic: Market Demand
% Correct Responses: 67
Correct Answer: False

Difficulty: 2
Discrimination Index: 27

15.24   The inverse demand for a good is given by $p = 60 - 2q$. Suppose that the number of consumers doubles. (For each consumer in the market another consumer with an identical demand function appears.) The demand curve shifts to the right, doubling demand at every price, while the slope of the demand curve stays unchanged.

Topic: Market Demand
% Correct Responses: 68
Correct Answer: False

Difficulty: 1
Discrimination Index: 45

15.25   If Castor's demand curve is described by $q = 40 - p$ and Pollux's demand curve is given by $q = 60 - 2p$, then each of their demand curves will pass through the point $q = 20$, $p = 20$. Therefore if they are the only two consumers in a market, the market demand curve will also pass through $q = 20$, $p = 20$.

Topic: Elasticity
% Correct Responses: 49
Correct Answer: False

Difficulty: 2
Discrimination Index: 44

15.26   If the price of broccoli falls by \$3 per pound, then the demand for broccoli will rise by 15 pounds. Therefore we can conclude that the demand for broccoli is elastic.

Topic: Elasticity
% Correct Responses: 49
Correct Answer: False

Difficulty: 2
Discrimination Index: 44

15.27   If the price of squash falls by \$2 per pound, then the demand for squash will rise by 10 pounds. Therefore we can conclude that the demand for squash is elastic.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 34
Correct Answer: E

15.1   A peck is 1/4 of a bushel. If the price elasticity of demand for bran is -0.20 when bran is measured in bushels, then when bran is measured in pecks, the price elasticity of demand for bran will be:

(a) -0.05.

(b) -0.80.

(c) -0.10.

(d) -0.40.

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 34
Correct Answer: E

15.2   A peck is 1/4 of a bushel. If the price elasticity of demand for millet is -0.60 when millet is measured in bushels, then when millet is measured in pecks, the price elasticity of demand for millet will be:

(a) -0.15.

(b) -2.40.

(c) -0.60.

(d) -1.20.

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 91   Discrimination Index: 9
Correct Answer: B

15.3   The demand function is described by the equation $q(p) = 190 - p/5$. The inverse demand function is described by:

(a) $q(p) = 190 - 5p$.

(b) $p(q) = 950 - 5q$.

(c) $q(p) = 1/(190 - p/5)$.

(d) $p(q) = 1/190 - q/5$.

(e) $p(q) = 190 - q/5$.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 91   Discrimination Index: 9
Correct Answer: B

15.4   The demand function is described by the equation $q(p) = 210 - p/4$. The inverse demand function is described by:

(a) $q(p) = 210 - 4p$.

(b) $p(q) = 840 - 4q$.

(c) $q(p) = 1/(210 - p/4)$.

(d) $p(q) = 1/210 - q/4$.

(e) $p(q) = 210 - q/4$.

Topic: Market Demand   Difficulty: 3
% Correct Responses: 37   Discrimination Index: 0
Correct Answer: A

15.5   If the demand function is $q = m - 2(ln\ p)$ over some range of values of p, then at all such values of p the absolute value of the price elasticity of demand:

(a) increases as p increases.

(b) decreases as p increases.

(c) is constant as p changes.

(d) increases with p at small values and decreases with p at large values.

(e) decreases with p at large values and increases with p at small values.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 27
Correct Answer: C

15.6   If the demand function for tickets to a play is $q = 3,600 - 45p$, at what price will total revenue be maximized?

(a) 160

(b) 80

(c) 40

(d) 20

(e) None of the above.

15.7 If the demand function for tickets to a play is $q = 800 - 20p$, at what price will total revenue be maximized?

(a) 80

(b) 40

(c) 20

(d) 10

(e) None of the above.

15.8 Rollo would love to have a Mercedes. His preferences for consumption in the next year are represented by a utility function $U(x, y)$ where $x = 0$ if he has no Mercedes and $x = 1$ if he has a Mercedes for the year and where y is the amount of income he has left to spend on other stuff. If $U(0, y) = the$ square root of y and $U(1, y) = (10/9)(y^5)$ and if Rollo's income is \$50,000 a year, how much would he be willing to pay per year to have a Mercedes?

(a) \$5,555.55

(b) \$5,000

(c) \$12,200

(d) \$9,500

(e) \$10,000

15.9   In Ozone, California people all have the same tastes and they all like hot tubs. Nobody wants more than one hot tub but a person with wealth M will be willing to pay up to $.01M$ for a hot tub. The distribution of wealth in Ozone is as follows. The number of people with a wealth greater than W for any given W is approximately $1,000,000/W$. The price elasticity of demand for hot tubs in Ozone California is:

(a) $-.1$

(b) $-.01$

(c) -1

(d) $-.4$

(e) None of the above.

15.10   In Manifold, Missouri (pop. $1,000$), people all have the same tastes and they all like Buicks. Nobody wants more than one Buick, but a person with income M is willing to pay about $.10M$ per year to have a Buick. Nobody in Manifold has an income greater than $50,000 and nobody has an income less than $10,000. For incomes, M, between $10,000 and $50,000, the number of people with incomes greater than M is about $1,250 - .025M$. If it costs $2,000 a year to have a Buick, how many people in Manifold will demand Buicks?

(a) 500

(b) 750

(c) 100

(d) 600

(e) 800

15.11 Rod cares about the number of cars he has and the amount of money he has to spend on other stuff. The only possibilities of interest for Rod are having 0, 1, or 2 cars. Where x is the number of cars he has and y is the money he has per year for other stuff, Rod's utility is $U(0,y) = y^{.5}$, $U(1,y) = (15/14)y^{.5}$, and $U(2,y) = (10/9)y^{.5}$. Rod's income is \$25,000 a year. It would cost Rod \$2,500 a year to have 1 car and \$3,500 a year to have 2 cars. How many cars will he choose?

(a) 0

(b) 1

(c) 2

(d) He is indifferent between buying 1 and buying 2 cars.

(e) He is indifferent between buying 2 and buying 3 cars.

15.12 Dr. Social Science has recently figured out how to clone consumers. His first effort was done on the population of Walla, Washington. Each original citizen got a clone who had exactly the same income and preferences. Which of the following statements describes what happened to the demand function for tuna-fish casseroles in Walla?

(a) The elasticity doubled and the slope remained constant.

(b) The elasticity did not change at any price.

(c) The elasticity of demand doubled and the slope doubled.

(d) The elasticity halved and the slope remained constant.

(e) None of the above.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 67   Discrimination Index: 0
Correct Answer: A

15.13   At the price of 100, tourists demand 587 airplane tickets. At the same price, business travelers demand 527. At the price 120, tourists demand 127 tickets and business travelers demand 127. Assuming that the demand curves of business travelers and tourists are both linear over this price range, what is the price elasticity of demand at the price 100?

(a) −3.86

(b) −43

(c) −4.63

(d) −0.04

(e) None of the above.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 67   Discrimination Index: 0
Correct Answer: A

15.14   At the price of 180, tourists demand 427 airplane tickets. At the same price, business travelers demand 507. At the price 200, tourists demand 127 tickets and business travelers demand 127. Assuming that the demand curves of business travelers and tourists are both linear over this price range, what is the price elasticity of demand at the price 180?

(a) −6.55

(b) −34

(c) −7.28

(d) −0.04

(e) None of the above.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 77   Discrimination Index: 32
Correct Answer: E

15.15   The inverse demand function for nectarines is described by the equation $p = 185 - 3q$, where p is the price in dollars per crate and where q is the number of crates of nectarines demanded per week. When $p = \$20$ per crate, what is the price elasticity of demand for nectarines?

(a) $-60/55$

(b) $-3/185$

(c) $-3/55$

(d) $-55/20$

(e) $-20/165$

Topic: Market Demand   Difficulty: 2
% Correct Responses: 77   Discrimination Index: 32
Correct Answer: E

15.16   The inverse demand function for grapes is described by the equation $p = 831 - 9q$, where p is the price in dollars per crate and where q is the number of crates of grapes demanded per week. When $p = \$39$ per crate, what is the price elasticity of demand for grapes?

(a) $-351/88$

(b) $-9/831$

(c) $-9/88$

(d) $-88/39$

(e) $-39/792$

Topic: Market Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

15.17   If there are only two goods, an increase in the price of good 1 will increase the demand for good 2:

(a) if and only if the price elasticity of demand for good 2 is greater than 1 in absolute value.

(b) whenever both goods are normal goods.

(c) only if the two goods are perfect substitutes.

(d) never.

(e) None of the above.

Topic: Market Demand

Difficulty: 1

% Correct Responses: 75

Discrimination Index: 20

Correct Answer: B

15.18 The demand function for small business computers in the U.S. is given by $x = 200 - 10p$ where x is annual sales measured in thousands of computers and p is the price measured in thousands of dollars. Japanese firms supply a big share of these computers. They measure prices in yen where 150 yen equal 1 dollar. The price of 1 computer is $10,000. Let E_u be the price elasticity of demand at this price as calculated by U.S. firms who measure in dollars and let E_j be the price elasticity of demand at the same $10,000 price, but measured in yen by the Japanese firms. Which of the following are the values of E_u and E_j, respectively?

(a) $-1, -150$

(b) $-1, -1$

(c) $-2, -2$

(d) $-2, -300$

(e) $-2, -.0133$

Topic: Market Demand

Difficulty: 1

% Correct Responses: 98

Discrimination Index: 25

Correct Answer: A

15.19 An economy has 100 consumers of Type 1 and 200 consumers of Type 2. If the price of the good is less than 10, then each Type 1 consumer demands $10 - p$ units of the good; otherwise each Type 1 demands zero. If the price of the good is less than 8, then each Type 2 demands $24 - 3p$; otherwise each Type 2 demands zero. If the price of the good is 6, then the total amount of the good demanded will be:

(a) 1,600.

(b) 1,800.

(c) 2,000.

(d) 420.

(e) 1,200.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 36
Correct Answer: A

15.20   Harry's demand function for blueberries is $x = 20 - 2p$ where p is the price and x is the quantity demanded. If the price of blueberries is 3, then what is Harry's price elasticity of demand for blueberries?

(a) $-6/14$

(b) $-2/20$

(c) -2

(d) $-14/6$

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 18
Correct Answer: D

15.21   The inverse demand function for rye is $p = 31,200 - 6q$. Total revenue in this market will be maximized when the quantity of rye produced is:

(a) 3,711

(b) 5,200

(c) 1,300

(d) 2,600

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 18
Correct Answer: D

15.22   The inverse demand function for barley is $p = 28,800 - 6q$. Total revenue in this market will be maximized when the quantity of barley produced is:

(a) 3,511

(b) 4,800

(c) 1,200

(d) 2,400

(e) None of the above.

Topic: Market Demand

Difficulty: 2

% Correct Responses: 49

Discrimination Index: 49

Correct Answer: C

15.23   When the price of bananas is 50 cents a pound, the total demand is 100 pounds. If the price elasticity of demand for bananas is −2, what quantity would be demanded if the price rose to 60 cents a pound?

(a) 50

(b) 90

(c) 60

(d) 80

(e) 70

Topic: Market Demand

Difficulty: 1

% Correct Responses: 90

Discrimination Index: 13

Correct Answer: D

15.24   The inverse demand function for coffee is $p = 50,000 - 2q$ where q is the number of tons produced and p is the price per ton. Total revenue from coffee sales be maximized when the output level is:

(a) 25,000 tons.

(b) 15,000 tons.

(c) 17,500 tons.

(d) 12,500 tons.

(e) None of the above.

Topic: Market Demand

Difficulty: 2

% Correct Responses: 70

Discrimination Index: 28

Correct Answer: B

15.25   Jen, Eric, and Kurt are all buyers of chain saws. Jen's demand function is $Q_j = 520 - 13P$, Eric's demand function is $Q_e = 40 - P$, and Kurt's demand function is $Q_k = 200 - 5P$. Together, these three constitute the entire demand for chainsaws. At what price will the price elasticity of market demand be −1?

(a) 19

(b) 20

(c) 25

(d) 15

(e) None of the above.

Topic: Market Demand

Difficulty: 2

% Correct Responses: 48

Discrimination Index: 12

Correct Answer: D

15.26 Given his current income, Rico's demand for bagels is related to the price of bagels by the equation, $Q = 160 - 20P$. Rico's income elasticity of demand for bagels is known to be equal to 0.5 at all prices and incomes. If Rico's income quadruples, his demand for bagels will be related to the price of bagels by the equation:

(a) $Q = 160 - 20P$.

(b) $Q = 640 - 80P$.

(c) $Q = 160 - 40P$.

(d) $Q = 320 - 40P$

(e) $Q = 320 - 20P$.

Topic: Market Demand

Difficulty: 2

% Correct Responses: 48

Discrimination Index: 12

Correct Answer: D

15.27 Given his current income, Rico's demand for bagels is related to the price of bagels by the equation, $Q = 520 - 20P$. Rico's income elasticity of demand for bagels is known to be equal to 0.5 at all prices and incomes. If Rico's income quadruples, his demand for bagels will be related to the price of bagels by the equation:

(a) $Q = 520 - 20P$.

(b) $Q = 2,080 - 80P$.

(c) $Q = 520 - 40P$.

(d) $Q = 1,040 - 40P$

(e) $Q = 1,040 - 20P$.

Topic: Market Demand

Difficulty: 3

% Correct Responses: 18

Discrimination Index: 17

Correct Answer: E

15.28 A person with a quasilinear utility function will:

(a) have a price elasticity of demand equal to zero for some goods.

(b) have an income elasticity of demand equal to one for some goods.

(c) necessarily consume zero quantity of some good.

(d) necessarily consume positive amounts of every good.

(e) None of the above.

Topic: Market Demand
% Correct Responses: 75
Correct Answer: C

Difficulty: 2
Discrimination Index: 24

15.29 In the village of Frankfurter, the demand function for sausages per person is $D(p) = 20 - 1.5p$, where p is the price of a single sausage. The present population of Frankfurter is 100 persons. Suppose that 10 more people move into town, each of whom has the same demand function as the old residents. At a price of $2 the price elasticity of demand for sausages in Frankfurter is:

(a) increased by 10 percent.

(b) decreased by 10 percent.

(c) unchanged.

(d) increased by 15 percent.

(e) none of the above.

Topic: Market Demand
% Correct Responses: 37
Correct Answer: B

Difficulty: 1
Discrimination Index: 59

15.30 A firm faces a demand function $D(p)$, for which the revenue maximizing price is $14. The demand function is altered to $2D(p)$. What is the new revenue maximizing price?

(a) $7

(b) $14

(c) $28

(d) There is insufficient information to determine this.

(e) None of the above.

Topic: Market Demand
% Correct Responses: 37
Correct Answer: B

Difficulty: 1
Discrimination Index: 59

15.31 A firm faces a demand function $D(p)$, for which the revenue maximizing price is $12. The demand function is altered to $2D(p)$. What is the new revenue maximizing price?

(a) $6

(b) $12

(c) $24

(d) There is insufficient information to determine this.

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 98   Discrimination Index: 15
Correct Answer: C

15.32   If the supply curve for x is given by $x = 100p^2$, then the inverse supply curve is given by:

(a) $100/p^2$.

(b) $x^2/100$.

(c) $x^{1/2}/10$.

(d) $p^{-2}/100$.

(e) None of the above.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 50   Discrimination Index: 30
Correct Answer: C

15.33   Ed has 100 tons of manure. The lowest price at which he is willing to sell it is $10 per ton. Fred wants to buy 100 tons of manure. The most he is willing to pay is $8 per ton. The Federal government offers to subsidize manure sales at a rate of $1 per ton. If Ed and Fred are the only people who deal in manure, then the deadweight loss caused by the subsidy is:

(a) $100.

(b) $50.

(c) 0.

(d) $200.

(e) None of the above.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 64   Discrimination Index: 28
Correct Answer: E

15.34   Fred's price elasticity of demand for milk is -2 at today's prices when we measure price in dollars and quantity of milk in quarts. If the price per quart of milk stays the same but we measure quantity of milk in gallons and price in dollars, then what will be the elasticity of demand for gallons of milk? (A gallon is four quarts.)

(a) -1

(b) $-1/2$

(c) -8

(d) -4

(e) -2

Topic: Market Demand   Difficulty: 2
% Correct Responses: 70   Discrimination Index: 32
Correct Answer: D

15.35   In a small Kansas town, there are two kinds of gasoline consumers: 100 Buick owners and 50 Dodge owners. Each Buick owner has the demand function $D_b(p) = max\{0, 20 - 5p\}$ and each Dodge owner has the demand function $D_d = max\{0, 15 - 3p\}$. In this town:

(a) the market demand curve has no kinks, but gets steeper as price rises.

(b) the market demand curve has no kinks, but gets flatter as price rises.

(c) the market demand curve has constant slope since individual demand curves have constant slope.

(d) the market demand curve has a kink at $p = 4$ and another at $p = 5$.

(e) the market demand curve has a kink at $p = 35/8$.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 16   Discrimination Index: 19
Correct Answer: A

15.36   In a certain city, the demand function for crack cocaine is $q = 1000 - p$ where p is the "street price". The cocaine industry is competitive. Cocaine distributors can buy as much cocaine as they wish at a price of $50 per unit from Colombian sources. Whenever the city narcotics police catch a cocaine dealer, they confiscate all the cocaine that he has. The jails are full so they do not imprison the dealers. The police are able to catch the dealers about half the time, so they get about half the cocaine that enters the city. Instead of destroying confiscated crack, the police simply resell it on the street. If the original supply curve of cocaine on the streets was horizontal, what is the net effect of police activities on the market for crack in this city?

(a) The amount purchased on the street is about 50 units smaller than it would be with no enforcement.

(b) There is no effect, since all of the drugs reach consumers anyway.

(c) Crack dealers will stop dealing in this city altogther, since they can make more money elsewhere.

(d) The amount of crack purchased on the street decreases by about half.

(e) The quantity purchased by dealers rises to make up for the amount that is confiscated.

Topic: Market Demand   Difficulty: 1
% Correct Responses: 50   Discrimination Index: 36
Correct Answer: C

15.37   If at current prices, the demand for a good is price-elastic, then for movements along the demand curve:

(a) increasing the price will increase revenue.

(b) decreasing the price will decrease revenue.

(c) increasing the quantity sold will increase revenue.

(d) increasing the quantity sold will decrease revenue.

(e) More than one of the above statements are true.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.38   The demand curve for a good is given by $p = 140 - 8q$ where p is the price and q is the quantity of the good. Suppose that the number of consumers in the economy doubles, with a "clone" appearing for each consumer, who has exactly the same demand curve as the original consumer. The demand curve for the doubled economy is described by:

(a) $p = 280 - 8q$.

(b) $p = 280 - 16q$.

(c) $p = 140 - 16q$.

(d) $p = 140 - 4q$.

(e) $p = 70 - 4q$.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.39   The demand curve for a good is given by $p = 240 - 10q$ where p is the price and q is the quantity of the good. Suppose that the number of consumers in the economy doubles, with a "clone" appearing for each consumer, who has exactly the same demand curve as the original consumer. The demand curve for the doubled economy is described by:

(a) $p = 480 - 10q$.

(b) $p = 480 - 20q$.

(c) $p = 240 - 20q$.

(d) $p = 240 - 5q$.

(e) $p = 120 - 5q$.

Topic: Market Demand
% Correct Responses: 98
Correct Answer: E

Difficulty: 2
Discrimination Index: 7

15.40 The demand for drangles is given by $D(p) = (p + 1)^{-2}$ where p is the price of drangles. If the price of drangles is 1, then the price elasticity of demand for drangles is:

(a) -4

(b) -2

(c) -3

(d) -2

(e) -1

Topic: Market Demand
% Correct Responses: 98
Correct Answer: E

Difficulty: 2
Discrimination Index: 7

15.41 The demand for drangles is given by $D(p) = (p + 1)^{-2}$ where p is the price of drangles. If the price of drangles is 18, then the price elasticity of demand for drangles is:

(a) -7.58

(b) -3.79

(c) -5.68

(d) -3.79

(e) -1.89

Topic: Market Demand
% Correct Responses: 59
Correct Answer: C

Difficulty: 2
Discrimination Index: 47

15.42 The only quantities of Good 1 that Fanny can buy are 1 unit or zero units. For all positive values of x_2, Fanny's preferences are represented by the utility function $(x_1 + 12)(x_2 + 6)$. If her income is 16 and the price of good 2 is 1, then Fanny's reservation price for Good 1 is:

(a) 3.38.

(b) 3.50.

(c) 1.69.

(d) 2.

(e) 0.40.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 47
Correct Answer: C

15.43   The only quantities of Good 1 that Anneli can buy are 1 unit or zero units. For all positive values of x_2, Anneli's preferences are represented by the utility function $(x_1 + 12)(x_2 + 14)$. If her income is 28 and the price of good 2 is 1, then Anneli's reservation price for Good 1 is:

(a) 6.46.

(b) 7.50.

(c) 3.23.

(d) 0.86.

(e) 1.07.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.44   In Gas Pump S.D., every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 250 Dodge owners. If the price of gasoline is 4.50, what is the total amount of gasoline demanded in Gas Pump?

(a) 750

(b) 187.50

(c) 562.50

(d) 375

(e) none of the above.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.45   In Gas Pump S.D., every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 100 Dodge owners. If the price of gasoline is 3.25, what is the total amount of gasoline demanded in Gas Pump?

(a) 1,800

(b) 450

(c) 1,350

(d) 900

(e) none of the above.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

15.46   The only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 10)(x_2 + 6)$. Then if her income were 4, her reservation price for Good 1 would be:

(a) 1.82

(b) 3.50

(c) 0.91

(d) 1.67

(e) 0.50

15.47 The only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 2)(x_2 + 10)$. Then if her income were 32, her reservation price for Good 1 would be:

(a) 28

(b) 5.50

(c) 14

(d) 0.20

(e) 4.90

15.48 At a large institution of higher learning, the demand for football tickets at each game is $180,000 - 6,000p$. If the capacity of the stadium at that university is 100,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 15

(b) 13.33

(c) 30

(d) 7.50

(e) 45

15.49 At a large institution of higher learning, the demand for football tickets at each game is $60,000 - 10,000p$. If the capacity of the stadium at that university is 40,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 3

(b) 2

(c) 6

(d) 1.50

(e) 9

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.50   The demand for tickets to a rock concert is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 13, then the price elasticity of demand for tickets is:

(a) -3.71.

(b) -2.79.

(c) -5.57.

(d) -0.93.

(e) -1.86.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.51   The demand for tickets to a rock concert is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 12, then the price elasticity of demand for tickets is:

(a) -3.

(b) -2.25.

(c) -4.50.

(d) -0.75.

(e) -1.50.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.52   The demand for watches is $Q = 1000P^{-1.50}I^2$. Assume that per capita income, I, is $2,000. At a price, P, of $70 the price elasticity of demand is

(a) 3.50.

(b) 1.0.

(c) 2.

(d) 0.50.

(e) 1.50.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.53   The demand for watches is $Q = 1000P^{-2.50}I^{-1}$. Assume that per capita income, I, is \$3,000. At a price, P, of \$80 the price elasticity of demand is

(a) 4.

(b) 1.0.

(c) -1.

(d) -3.50.

(e) 2.50.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.54   The demand for voice mail is $Q = 1000 - 150P + 15I$. Assume that per capita disposable income, I, is \$800. At a price, P, of \$50 the income elasticity of demand is

(a) 1.50.

(b) 5.

(c) 1.0.

(d) 15.

(e) 2.18.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.55   The demand for voice mail is $Q = 1000 - 150P + 35I$. Assume that per capita disposable income, I, is \$700. At a price, P, of \$40 the income elasticity of demand is

(a) 3.50.

(b) 4.

(c) 1.0.

(d) 35.

(e) 1.26.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.56   If the marginal cost of making a photocopy is 2 cents and the elasticity of demand is 1.50, the profit maximizing price is

(a) 3 cents.

(b) 3.33 cents.

(c) 4 cents.

(d) 5 cents.

(e) 6 cents.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

15.57   If the marginal cost of making a photocopy is 2 cents and the elasticity of demand is 2.00, the profit maximizing price is

(a) 3 cents.

(b) 3.33 cents.

(c) 4 cents.

(d) 5 cents.

(e) 6 cents.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.58   If the marginal cost of brewing beer is 40 cents and the profit maximizing price is 70 cents, then the price elasticity of demand is

(a) −0.66.

(b) −1.8.

(c) −2.

(d) −2.33.

(e) −3.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

15.59 If the marginal cost of brewing beer is 40 cents and the profit maximizing price is 80 cents, then the price elasticity of demand is

(a) −0.66.

(b) −1.8.

(c) −2.

(d) −2.33.

(e) −3.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.60 The constant elasticity of demand for cigarettes has been estimated to be 0.5. To reduce smoking by 50%, approximately how much tax needs to be added to a $1 pack?

(a) $0.25.

(b) $0.50.

(c) $1.

(d) $1.50.

(e) $4.00.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.61 The constant elasticity of demand for cigarettes has been estimated to be 0.5. To reduce smoking by 75%, approximately how much tax needs to be added to a $1 pack?

(a) $0.38.

(b) $0.75.

(c) $1.50

(d) $2.25.

(e) $4.00.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

15.62 The demand for cable television hookups is $Q = 100 - 10P^{0.5} + 2I^2$, where P is price and I is per capita income. Cable TV is

(a) a normal good.

(b) a natural monopoly.

(c) an inferior good.

(d) a substitute good.

(e) a complement good.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

15.63 The demand for cable television hookups is $Q = 100 - 10P^{0.5} + 2I^{-2}$, where P is price and I is per capita income. Cable TV is

(a) a normal good.

(b) a natural monopoly.

(c) an inferior good.

(d) a substitute good.

(e) a complement good.

Topic: Market Demand
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

15.64 If the demand for *The Weekly World News* at a local grocery store is described by
$Q = 2500 - 400P - I/10$
for $I = \$15,000$ and $P = \$1.50$, the marginal revenue of an additional paper sold at this store is

(a) \$1.50

(b) \$0.38

(c) \$0.50

(d) \$0.15

(e) \$1

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.65 If the demand for *The Weekly World News* at a local grocery store is described by
$Q = 2500 - 400P - I/10$
for $I = \$20,000$ and $P = \$0.75$, the marginal revenue of an additional paper sold at this store is

(a) $0.75

(b) $0.19

(c) $0.25

(d) $0.08

(e) $0.50

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

15.66 Demand for Barbara Streisand CD's is equal $to Q_s = P_s^{2.50} I^{1.80} P_c^{0.60}$ where Q_s is the number of CD's, P_s is the price of a Streisand CD, I is per capita income, and P_c is the price of a Karen Carpenter CD. Streisand and Carpenter CD's

(a) are inferior goods.

(b) are substitutes.

(c) are complements.

(d) have diminishing returns to scale.

(e) are not as good as the original 8 track tapes.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

15.67 Demand for Barbara Streisand CD's is equal $to Q_s = P_s^{2.80} I^{2.50} P_c^1$ where Q_s is the number of CD's, P_s is the price of a Streisand CD, I is per capita income, and P_c is the price of a Karen Carpenter CD. Streisand and Carpenter CD's

(a) are inferior goods.

(b) are substitutes.

(c) are complements.

(d) have diminishing returns to scale.

(e) are not as good as the original 8 track tapes.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

15.1   Suppose that the inverse demand function for wool is $p = A/q$ for some constant A. Suppose that 1/4 of the world's wool is produced in Australia. a) If Australian wool production increases by 1% and the rest of the world holds its output constant, what will be the effect on the world price of wool? b) How is the marginal revenue to Australia from an extra unit of wool relate to the price of wool?

Answer: a) Price will fall by about one fourth of one percent. b) Marginal revenue is three fourths of price.

Topic: Market Demand   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

15.2   Bart Wurst runs the only hotdog stand in a large park in a large boring town. On Sundays people in this town all sit in the park and sunbathe. For any t between 0 and 30, the number of people who are sitting within t minutes of Bart's stand is $10t^2$. People in Bart's town are lazy and hate to walk. They think that every minute of walking they do is as bad as spending \$.10. Everybody in the park has a reservation price of \$1 for a hot dog where the cost of a hot dog includes the subjective cost of walking as well as the money price they have to pay when they get there. (Nobody has ever thought of fetching a hot dog for someone else.) Find a formula for the demand curve for Bart's hot dogs. Explain how you got it.

Answer: If Bart charges p where $0 < p < 1$, his extensive margin is the customers who are at distance t* from Bart where $p + .10t* = 1$. Then $t* = 10 - p$ and the demand for hot dogs at prices p is the number, $(10 - p)^2$, of people within t* of Bart.

Topic: Market Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

15.3   In Tassel, Illinois $(pop, 20,000)$, there are two kinds of families, those who like swimming pools and those who don't. Half of the population is of each type. Families who like swimming pools are willing to spend up to 5% of their income each year on a swimming pool. Families who don't like them would pay nothing for a swimming pool. Nobody wants more than one swimming pool and nobody has thought of sharing a swimming pool. Incomes in Tassel range between \$10,000 and \$110,000. For incomes, M, in this range, the number of families in Tassel with income greater than M is about $22,000 - .2M$. (The two types of families have the same income distribution.) Find the aggregate demand function for swimming pools in Tassel (demand for swimming pools as a function of annual cost of having one).

Answer: The number of people willing to pay at least p is half of the number who have income at least $20p$. Therefore the aggregate demand function is $11,000 - 2p$.

15.4   Ethel is trying to decide whether to have 0 cars, 1 car, or 2 cars. If x is the number of cars she has and y is the amount of money she has per year to spend on other stuff, Ethel's utility function is $U(x, y)$ where $U(0, y) = y^{1/2}$, $U(1, y) = (15/14)y^{1/2}$, and $U(2, y) = (10/9)y^{1/2}$. Suppose that it costs $2000 a year to have 1 car and $4000 a year to have 2 cars. Ethel finds that the right thing to do depends on her income. What is her willingness to pay for 1 car if her income is M? What is the lowest income at which she would have a car? What is the lowest income at which she would have 2 cars?

Answer: Her willingness to pay for 1 car is about $.129M$ where M is her income. The lowest income at which she would get a car is $15,504. If we solve the equation $U(1, y - 2000) = U(2, y - 4000)$ we find $55,143. At incomes above that she prefers 2 cars; below that she would be better off to have 1 car.

15.5   Using the graph of a demand curve, explain why marginal revenue is less than price.

15.6   The demand for Craftmatic Adjustable Beds is described by
$Q_c = P_c^{-1.40} I^{-0.60} P_m^{0.20} A^{0.25}$
where Q_c is the number of Craftmatic Adjustable Beds demanded, P_c is the price of a Craftmatic Adjustable Bed, I is per captia income, P_m is the price of a battery powered massage pillow, and A is the advertising budget.
a) If the marginal cost of producing a Craftmatic Adjustable Bed is $200, what is the profit maximizing price?
b) Per capita income in the United States is forecast to rise by 3% next year. How will this impact Craftmatic's sales?
c) The price of battery powered massage pillows suddenly fell by 10%. How will this impace Craftmatic's sales?

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

15.7   The demand for Craftmatic Adjustable Beds is described by
$Q_c = P_c^{-1.40} I^{-0.40} P_m^{-1.60} A^{0.25}$
where Q_c is the number of Craftmatic Adjustable Beds demanded, P_c is the price of a Craftmatic Adjustable Bed, I is per captia income, P_m is the price of a battery powered massage pillow, and A is the advertising budget.
a) If the marginal cost of producing a Craftmatic Adjustable Bed is $200, what is the profit maximizing price?
b) Per capita income in the United States is forecast to rise by 3% next year. How will this impact Craftmatic's sales?
c) The price of battery powered massage pillows suddenly fell by 10%. How will this impace Craftmatic's sales?

Chapter 16

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 97   Discrimination Index: 5
Correct Answer: True

16.1   If the supply curve is vertical, then the amount supplied is independent of price.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 17
Correct Answer: False

16.2   If the supply is perfectly elastic, then an upward shift of the demand curve will lead to a higher price and quantity in equilibrium.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 96   Discrimination Index: 0
Correct Answer: True

16.3   The supply curve slopes up and to the right. If the demand curve shifts upward to a new curve which is everywhere higher than the old curve (but possibly of different slope) and if the supply curve does not shift, then the equilibrium price and quantity must necessarily increase.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 72   Discrimination Index: 22
Correct Answer: False

16.4   Supply and demand theory shows us that the burden of a sales tax is shared equally by suppliers and demanders whether the tax is collected from the sellers or collected from the buyers.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 73   Discrimination Index: 16
Correct Answer: False

16.5   An economic situation is Pareto optimal only if there is no way to make someone better off.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 29   Discrimination Index: 28
Correct Answer: True

16.6   The amount of a good supplied is independent of the price. If a sales tax is imposed on the good, then the price paid by consumers will not change at all.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 91   Discrimination Index: 14
Correct Answer: False

16.7   If a quantity tax is collected from competitive suppliers of a good, placing a tax on the good causes the price paid by consumers to increase more than if the tax had been collected directly from the buyers.

Topic: Budgets   Difficulty: 2
% Correct Responses: 50   Discrimination Index: 23
Correct Answer: True

16.8   The demand curve, which is a downward-sloping straight line, crosses the supply curve, which is an upward-sloping straight line. If a tax is introduced where sellers must pay a tax of $2 per unit sold, then the equilibrium price paid by demanders will rise by more than $1 if the absolute value of the slope of the demand curve is greater than the absolute value of the slope of the supply curve.

Topic: Equilibrium   Difficulty: 1

% Correct Responses: 93   Discrimination Index: 14

Correct Answer: B

16.1   The demand for pickles is given by $p = 131 - 2q$ and supply is given by $p = 5 + 7q$. What is the equilibrium quantity?

(a) 11

(b) 14

(c) 19

(d) 103

(e) None of the above.

Topic: Equilibrium   Difficulty: 1

% Correct Responses: 93   Discrimination Index: 14

Correct Answer: B

16.2   The demand for pickles is given by $p = 82 - 2q$ and supply is given by $p = 2 + 2q$. What is the equilibrium quantity?

(a) 17

(b) 20

(c) 25

(d) 42

(e) None of the above.

Topic: Equilibrium   Difficulty: 1

% Correct Responses: 99   Discrimination Index: 23

Correct Answer: B

16.3   The demand function for fresh strawberries is $q = 200 - 5p$ and the supply function is $q = 60 + 2p$. What is the equilibrium price?

(a) 10

(b) 20

(c) 40

(d) 50

(e) None of the above.

Topic: Equilibrium

% Correct Responses: 94

Correct Answer: D

Difficulty: 1

Discrimination Index: 11

16.4 The inverse demand function for mangos is defined by the equation, $p = 91 - 5q$, where q is the number of crates that are sold. The inverse supply function is defined by $p = 3 + 6q$. In the past there was no tax on mangos but now a tax of $44 per crate has been imposed. What are the quantities produced before and after the tax was imposed?

(a) 5 crates before and 5 crates after

(b) 16 crates before and 9 crates after

(c) 14 crates before and 7 crates after

(d) 8 crates before and 4 crates after

(e) None of the above.

Topic: Equilibrium

% Correct Responses: 94

Correct Answer: D

Difficulty: 1

Discrimination Index: 11

16.5 The inverse demand function for apples is defined by the equation, $p = 129 - 12q$, where q is the number of crates that are sold. The inverse supply function is defined by $p = 3 + 6q$. In the past there was no tax on apples but now a tax of $90 per crate has been imposed. What are the quantities produced before and after the tax was imposed?

(a) 4 crates before and 3 crates after

(b) 14 crates before and 5 crates after

(c) 13 crates before and 5 crates after

(d) 7 crates before and 2 crates after

(e) None of the above.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 87

Discrimination Index: 9

Correct Answer: B

16.6 The inverse demand for eggs is $p = 84 - 9q$ where q is the number of cases of eggs. The inverse supply is $p = 7 + 2q$. In the past, eggs were not taxed, but now a tax of 33 dollars per case has been introduced. What is the effect of the tax on the quantity of eggs supplied?

(a) Quantity drops by 2 cases.

(b) Quantity drops by 3 cases.

(c) Quantity drops by 6 cases.

(d) Quantity drops by 4 cases.

(e) None of the above.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 87

Discrimination Index: 9

Correct Answer: B

16.7 The inverse demand for eggs is $p = 61 - 3q$ where q is the number of cases of eggs. The inverse supply is $p = 7 + 6q$. In the past, eggs were not taxed, but now a tax of 36 dollars per case has been introduced. What is the effect of the tax on the quantity of eggs supplied?

(a) Quantity drops by 3 cases.

(b) Quantity drops by 4 cases.

(c) Quantity drops by 8 cases.

(d) Quantity drops by 5 cases.

(e) None of the above.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 86

Discrimination Index: 33

Correct Answer: C

16.8 The inverse demand function for cases of whiskey is defined by $p = 160 - 6q$ and the inverse supply function is defined by $p = 61 + 3q$. Originally there was no tax on whiskey. Then the government began to tax suppliers of whiskey \$27 for every case they sold. How much did the price paid by consumers rise when the new equilibrium was reached.

(a) It rose by 27 dollars.

(b) It rose by 29 dollars.

(c) It rose by 18 dollars.

(d) It rose by 16 dollars.

(e) None of the above.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 86

Discrimination Index: 33

Correct Answer: C

16.9 The inverse demand function for cases of whiskey is defined by $p = 241 - 11q$ and the inverse supply function is defined by $p = 17 + 5q$. Originally there was no tax on whiskey. Then the government began to tax suppliers of whiskey $112 for every case they sold. How much did the price paid by consumers rise when the new equilibrium was reached.

(a) It rose by 112 dollars.

(b) It rose by 114 dollars.

(c) It rose by 77 dollars.

(d) It rose by 75 dollars.

(e) None of the above.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 62

Discrimination Index: 50

Correct Answer: A

16.10 The inverse demand function for cigars is defined by $p = 240 - 2q$ and the inverse supply function is defined by $p = 3 + q$. Cigars are taxed at $4 per box. Which of the following is true?

(a) The after tax price paid by consumers rises by more than $2 and the after tax price received by suppliers falls by less than $2.

(b) The after tax price paid by consumers goes up by less than $2 and the after tax price received by suppliers rises.

(c) Consumers and suppliers share the cost of the tax equally.

(d) The after tax price paid by consumers rises by $4 and the after tax price received by suppliers stays constant.

(e) The after tax price paid by consumers rises by less than $2 and the after tax price received by suppliers stays constant.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 49
Correct Answer: D

16.11   Xaquane and Yullare are obscure, but talented, 18th century painters. The world's stock of Xaquanes is 100 and the world's stock of Yullares is 70. The demand for each painter's work depends on its own price and the price of the other painter's work. If P_x is the price of Xaquanes and P_y is the price of Yullares, the demand function for Xaquanes is $101 - 3P_x + 2P_y$ and the demand function for Yullares is $72 + P_x - P_y$. What is the equilibrium price for Yullare's paintings?

(a) 5

(b) 11

(c) 12

(d) 7

(e) None of the above.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 38   Discrimination Index: 32767
Correct Answer: C

16.12   In a certain kingdom, the demand function for rye bread was $q = 381 - 3p$ and the supply function was $q = 5 + 7p$ where p is the price in zlotys and q is loaves of bread. The king made it illegal to sell rye bread for a price above 32 zlotys per loaf. To avoid shortages, he agreed to pay bakers enough of a subsidy for each loaf of bread so as to make supply equal demand. How much would the subsidy per loaf have to be?

(a) 21 zlotys

(b) 14 zlotys

(c) 8 zlotys

(d) 20 zlotys

(e) None of the above.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 38   Discrimination Index: 32767
Correct Answer: C

16.13   In a certain kingdom, the demand function for rye bread was $q = 201 - 4p$ and the supply function was $q = 13 + 3p$ where p is the price in zlotys and q is loaves of bread. The king made it illegal to sell rye bread for a price above 23 zlotys per loaf. To avoid shortages, he agreed to pay bakers enough of a subsidy for each loaf of bread so as to make supply equal demand. How much would the subsidy per loaf have to be?

(a) 21 zlotys

(b) 14 zlotys

(c) 9 zlotys

(d) 20 zlotys

(e) None of the above.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 137
Correct Answer: A

16.14   The demand function for orange juice is $q = 269 - 9p$ and the supply function is $q = 9 + 4p$, where q is the number of units sold per year and p is the price per unit, expressed in dollars. The government decides to support the price of orange juice at a price floor of $24 per unit by buying orange juice and destroying all that it has purchased. How many units must the government destroy per year?

(a) 52

(b) 56

(c) 25

(d) 61

(e) 57

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 137

Correct Answer: A

16.15 The demand function for butter is $q = 126 - 6p$ and the supply function is $q = 14 + 2p$, where q is the number of units sold per year and p is the price per unit, expressed in dollars. The government decides to support the price of butter at a price floor of \$20 per unit by buying butter and destroying all that it has purchased. How many units must the government destroy per year?

(a) 48

(b) 54

(c) 18

(d) 57

(e) 53

Topic: Equilibrium

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 19

Correct Answer: B

16.16 The demand function for rental apartments is $q = 960 - 7p$ and the supply function is $q = 160 + 3p$. The government makes it illegal to charge a rent higher than 35. How much excess demand will there be?

(a) 149

(b) 450

(c) 364

(d) 726

(e) 245

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 65

Discrimination Index: 38

Correct Answer: D

16.17 The demand function for abalone is $q = 30 - 9p$ and the supply function is $q = 6p$. Suddenly the yuppies discover abalone. The quantity demanded at every price doubles. The supply function, however, remains the same as before. What is the effect on the equilibrium price and quantity?

(a) The price doubles and the quantity remains constant.

(b) The quantity doubles and the price remains constant.

(c) Both price and quantity double.

(d) Both price and quantity increase, but neither doubles.

(e) None of the above.

Topic: Equilibrium

Difficulty: 3

% Correct Responses: 20

Discrimination Index: 19

Correct Answer: D

16.18   Remember King Kanuta and his tropical island? The demand function for coconuts by his subjects on the island is $D(p) = 1200 - 100p$ and the supply function is $S(p) = 100p$. The law used to be that any subject who consumed a coconut had to pay another coconut to the king. King Kanuta then ate all the coconuts he got. But now the king, apparently fed up with coconuts, decides to sell the coconuts that he collects in the local market at the going selling price, p_s. In equilibrium, the number of coconuts that will now be produced is:

(a) 100.

(b) 200.

(c) 600.

(d) 400.

(e) 300.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 71

Discrimination Index: 13

Correct Answer: A

16.19   The inverse demand function for video games is $p = 240 - 2q$ and the inverse supply is $p = 3 + q$. When the government imposes a \$6 tax on each video game purchased:

(a) consumers' surplus falls by more than producers' surplus.

(b) producers' surplus falls by more than consumers' surplus.

(c) consumers' surplus and producers' surplus fall by the same amount.

(d) comsumers' surplus falls and producers' surplus increases.

(e) producers' surplus falls and consumers' surplus increases.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 24
Correct Answer: A

16.20   The demand function for corn is $q = 200 - p$ and the supply function is $q = 50 + .5p$. The government sets the price of corn at 150 and agrees to purchase and destroy any excess supply of corn at that price. How much money does it cost the government to buy this corn?

(a) 11,250

(b) 18,750

(c) 7,500

(d) 10,750

(e) 14,500

Topic: Equilibrium   Difficulty: 3
% Correct Responses: 36   Discrimination Index: 23
Correct Answer: B

16.21   The market for tennis shoes has a horizontal supply curve and a linear, downward-sloping demand curve. Currently the government imposes a tax of t on every pair of tennis shoes sold and does not tax other goods. The government is considering a plan to double the tax on tennis shoes, while leaving other goods untaxed. If the tax is doubled, then:

(a) the total deadweight loss caused by the doubled tax will be exactly twice the original deadweight loss.

(b) the total deadweight loss caused by the doubled tax will be more than twice the original deadweight loss.

(c) the total deadweight loss caused by the doubled tax will be less than twice the original deadweight loss.

(d) to know if doubling the tax would more than double the deadweight loss, we would have to know the slope of the demand curve.

(e) None of the above.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 40   Discrimination Index: 33
Correct Answer: D

16.22   The demand curve for rutabagas is a straight line with slope -3 and the supply curve is a straight line with slope 2. Suppose that a new tax of \$3 per sack of rutabagas is introduced. Which of the following must certainly be true of the change in equilibrium prices and/or quantities?

(a) The total number of rutabagas purchased increases.

(b) The price paid by demanders rises by the same amount as the price received by suppliers falls.

(c) The price received by suppliers falls by more than the price paid by demanders rises.

(d) The price paid by demanders rises by more than the price received by suppliers falls.

(e) The price paid by demanders rises by more than \$3.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 40

Discrimination Index: 33

Correct Answer: D

16.23 The demand curve for rutabagas is a straight line with slope -2 and the supply curve is a straight line with slope 2. Suppose that a new tax of \$3 per sack of rutabagas is introduced. Which of the following must certainly be true of the change in equilibrium prices and/or quantities?

(a) The total number of rutabagas purchased increases.

(b) The price paid by demanders rises by the same amount as the price received by suppliers falls.

(c) The price received by suppliers falls by more than the price paid by demanders rises.

(d) The price paid by demanders rises by more than the price received by suppliers falls.

(e) The price paid by demanders rises by more than \$3.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 42

Discrimination Index: 40

Correct Answer: A

16.24 The quantity q of grapefruits demanded at price p is given by $q = 30 - 3p$ and the supply schedule by $q = 6p$. The government imposes a quantity tax at some rate t, which it collects from buyers. What is the smallest tax rate that will result in no grapefruits being bought or sold?

(a) 10

(b) 3.33

(c) 3.67

(d) 11.50

(e) 13

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 42

Discrimination Index: 40

Correct Answer: A

16.25 The quantity q of nectarines demanded at price p is given by $q = 16 - 4p$ and the supply schedule by $q = 3p$. The government imposes a quantity tax at some rate t, which it collects from buyers. What is the smallest tax rate that will result in no nectarines being bought or sold?

(a) 4

(b) 2.29

(c) 2.86

(d) 5.50

(e) 7

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 23
Correct Answer: B

16.26   The demand function for x is $D(p) = 65 - 2p$ and the supply function is $S(p) = 20 + p$. The price that should be set to restrict quantity supplied to 30 units is closest to:

(a) 5.

(b) 10.

(c) 15.

(d) 50.

(e) 55.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 89   Discrimination Index: 19
Correct Answer: D

16.27   The inverse demand function for apples is defined by the equation $p = 214 - 5q$, where q is the number of units sold. The inverse supply function is defined by $p = 7 + 4q$. A tax of 36 is imposed on suppliers for each unit of apples that they sell. When the tax is imposed, the quantity of apples sold falls to:

(a) 23.

(b) 14.

(c) 17.

(d) 19.

(e) 21.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 89   Discrimination Index: 19
Correct Answer: D

16.28   The inverse demand function for melons is defined by the equation $p = 385 - 10q$, where q is the number of units sold. The inverse supply function is defined by $p = 13 + 2q$. A tax of 36 is imposed on suppliers for each unit of melons that they sell. When the tax is imposed, the quantity of melons sold falls to:

(a) 31.

(b) 13.

(c) 26.

(d) 28.

(e) 29.50.

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

16.29 In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 14 + 5p$ and the long run demand function was given by $q = 329 - 5p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 25 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 6.50

(b) 10

(c) 13

(d) 26

(e) 19.50

Topic: Equilibrium

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

16.30 In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 14 + 2p$ and the long run demand function was given by $q = 94 - 2p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 13 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 7

(b) 11

(c) 14

(d) 28

(e) 21

16.31   The price elasticity of demand for a certain agricultural product is constant (over the relevant range of prices) and equal to -1.50. The supply elasticity for this product is constant and equal to 4. Originally the equilibrium price of this good was 15 per unit. Then it was discovered that consumption of this product was unhealthy. The quantity that would be demanded at any price fell by 11%. The percent change in the long run equilibrium consumption of this good was:

(a) -11%.

(b) -8%.

(c) -2%.

(d) -12%.

(e) There is not enough information to determine the answer.

16.32   The price elasticity of demand for a certain agricultural product is constant (over the relevant range of prices) and equal to -2.50. The supply elasticity for this product is constant and equal to 4. Originally the equilibrium price of this good was 50 per unit. Then it was discovered that consumption of this product was unhealthy. The quantity that would be demanded at any price fell by 52%. The percent change in the long run equilibrium consumption of this good was:

(a) -52%.

(b) -32%.

(c) -8%.

(d) -36%.

(e) There is not enough information to determine the answer.

16.33   Suppose that King Kanuta, whom you met in your workbook, demands that each of his subjects give him 1 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 1,500 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be:

(a) 6

(b) 9

(c) 7.50

(d) 15

(e) None of the above

16.34   Suppose that King Kanuta, whom you met in your workbook, demands that each of his subjects give him 4 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 9,360 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be:

(a) 18

(b) 27

(c) 46.80

(d) 234

(e) None of the above

Topic: Equilibrium

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

16.35   Schrecklich and Lamerde are two obscure modernist painters, who are no longer alive, but whose paintings are still enjoyed by persons of dubious taste. The demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for Lamerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and Lamerdes. If the world supply of Schrecklichs is 110 and the world supply of Lamerdes is 110, then the equilibrium price of Schrecklichs is:

(a) 9.

(b) 22.50.

(c) 36.

(d) 27.

(e) 18.

Topic: Equilibrium

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

16.36   Schrecklich and Lamerde are two obscure modernist painters, who are no longer alive, but whose paintings are still enjoyed by persons of dubious taste. The demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for Lamerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and Lamerdes. If the world supply of Schrecklichs is 100 and the world supply of Lamerdes is 80, then the equilibrium price of Schrecklichs is:

(a) 6.

(b) 25.

(c) 44.

(d) 38.

(e) 12.

16.37

Daily demand for gasoline at Billy-Bob's Mobile Station is described by $Q = 776 - 200p$ where Q are gallons of gasoline sold and p is the price in dollars. Billy-Bob's supply is $Q = -890 + 1{,}500p$. Suppose the state government places a tax of 20 cents on every gallon of gasoline sold. What is the deadweight loss resulting from this tax?

(a) 3.53 dollars.

(b) 3.11 dollars.

(c) 0.42 dollars.

(d) 96.12 dollars.

(e) 34.59 dollars.

16.38

Daily demand for gasoline at Billy-Bob's Mobile Station is described by $Q = 1{,}870 - 1{,}000p$ where Q are gallons of gasoline sold and p is the price in dollars. Billy-Bob's supply is $Q = 362 + 300p$. Suppose the state government places a tax of 7 cents on every gallon of gasoline sold. What is the deadweight loss resulting from this tax?

(a) 0.57 dollars.

(b) 0.13 dollars.

(c) 0.43 dollars.

(d) 11.21 dollars.

(e) 18.74 dollars.

Topic: Equilibrium   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

16.1   Use supply and demand analysis to examine the following statement: "The practice of giving food stamps is self-defeating. Food stamps effectively lower the price of food. When food becomes available at lower prices, demand will increase thereby forcing the price up to its initial level." Is this reasoning correct? Draw supply and demand curves to illustrate your answer.

Answer: The subsidy would shift the demand curve to the right, much as the quotation says, but if the supply curve slopes up, then the new equilibrium should take place with a greater supply and a lower net price for those who use food stamps. The market price will rise, but not by the full amount of the discount one gets with food stamps.

Topic: Equilibrium   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

16.2   Long ago, a kindly prince noticed the misery of his subjects. His subjects all had the same preferences and the same low incomes. The demand function of each subject for bread was $q = 26 - p$ where p is the price of bread and q is the number of loaves per week. The supply of bread per capita per week was given by the function $q = .3p$. The king declared since his subjects did not even get a loaf of bread per day, he would help them by making it illegal to sell bread for more than 10 groschens per loaf. Unhappily, a bread shortage arose and people waited in long lines to get bread. a) Draw a graph to show why. Put numerical labels on the important points on your graph. *b*) If the citizens could earn 4 groschens per hour at work that was exactly as unpleasant as waiting in line, what would be the equilibrium waiting time for a loaf of bread?

Answer: *b*)3.25 Hours.

Chapter 17

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.1   In a Dutch auction with rational bidders, it sometimes happens that the object being sold goes to someone whose value for the object is not as high as that of some other *bidder(s)*.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.2   In an English auction, with rational bidders, the object being sold always goes to the bidder who values it most highly.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.3   An auction in which some bidders have different information about the value of an object than others is said to be an auction with private values.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.4   In a private-values auction with rational bidders, we can expect the same outcome from an English auction as from a Vickrey auction.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

17.5   An auctioneer allows bidders to examine a jar of pennies, but he does not allow them to open the jar and count the pennies. The jar is then sold by means of an English auction. Economists call an auction of this type a a private-values auction, since opinions differ.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.6   The reserve price in an auction is the lowest price at which the seller of a good will part with it.

Topic: Auctions
% Correct Responses: 0
Correct Answer: False

Difficulty: 0
Discrimination Index: 0

17.7 If a good is sold in a Dutch auction and the bidders bid rationally, the price paid for the good will always be equal to the second-highest willingness to pay of auction participants.

Topic: Auctions
% Correct Responses: 0
Correct Answer: False

Difficulty: 0
Discrimination Index: 0

17.8 The "winner's curse" refers to the fact that in a sealed-bid auction with private values, the winning bidder often pays more than he would have to in order to win the object auctioned.

Topic: Auctions
% Correct Responses: 0
Correct Answer: False

Difficulty: 0
Discrimination Index: 0

17.9 It is never a profit-maximizing strategy for a seller in an English auction to set a reserve price for the good he is selling, so high that he might not be able to sell it at all.

Topic: Auctions
% Correct Responses: 0
Correct Answer: True

Difficulty: 0
Discrimination Index: 0

17.10 It is often the case that a seller can increase his profits from an auction by setting a reserve price even if he has to destroy the object being auctioned if nobody bids as high as the reserve price.

Topic: Auctions
% Correct Responses: 0
Correct Answer: True

Difficulty: 0
Discrimination Index: 0

17.11 The profit-maximizing strategy for a bidder in a Vickrey auction where there are common values for the object being sold is to bid less than her estimated value for the object, and the more bidders there are, the more the profit-maximizing bidder should shade her bid below her estimated value.

Topic: Auctions
% Correct Responses: 0
Correct Answer: True

Difficulty: 0
Discrimination Index: 0

17.12 The optimal strategy for a bidder in a private-values Vickrey auction is to bid his true valuation.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

17.13   In a common-value auction, the bids of other bidders can influence the maximum amount that one is willing to pay for an object, while in a private-value auction this is not the case.

Topic: Auctions   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

17.1 A first-edition of Adam Smith's *Wealth of Nations* (published in 1776) is being auctioned via the internet. The current owner starts by posting his own "bid" for it. Bidders are allowed to submit bids at any time during a one-week interval. For the following week, bids will be accepted only if they exceed the currently posted high bid. Throughout the week, the highest bid that anyone has made so far will be posted. At the end of the week, the book will be sold to the highest bidder at the price that he or she bid for it. Assuming that bidders understand the rules of the auction, the outcome of this auction will be similar to that for

(a) an English auction with a reserve price equal to the owner's bid.

(b) a Dutch auction with a reserve price equal to the owner's bid.

(c) a sealed-bid auction in which the book is sold to the highest bidder at the highest bidder's bid price.

(d) a common-value auction.

(e) an English auction with no reserve price.

Topic: Auctions   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

17.2 A stamp dealer is holding an auction for an English Penny Black postage stamp, issued in 1840. Potential buyers are asked to submit written bids for this stamp, and it will be sold to the highest bidder at a price equal to the bid submitted by the second-highest bidder. If bidders understand the logic of this auction and bid in their own self-interest,

(a) bidders will shade their bids by approximately 10 percent, and hence the stamp will be sold for about 10 percent less than the second-highest willingness to pay.

(b) bidders will bid more than their true valuation, since they only have to pay the second-highest bid and not their own bid.

(c) bidders will bid exactly their true valuation.

(d) the highest bidder will overstate his valuation and the second-highest bidder will understate his valuation.

(e) bidders will all bid $(n - 1/n)$ of their true valuations, where n is the number of bidders.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

17.3   An antique cabinet is being sold by means of an English auction. There are four bidders, Natalie, Heidi, Linda, and Eva. These bidders are unacquainted with each other and do not collude. Natalie values the cabinet at $1,200, Heidi values it at $950, Linda values it at $1,700, and Eva values it at $700. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Linda for about $1,700.

(b) Natalie for about $1,200.

(c) either Linda or Natalie for slightly more than $1,200. Which of them actually gets it is randomly determined.

(d) Linda for slightly more than $1,200.

(e) None of the above statements are true.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

17.4   An antique cabinet is being sold by means of an English auction. There are four bidders, Maria, Clara, Holly, and Josephine. These bidders are unacquainted with each other and do not collude. Maria values the cabinet at $1,600, Clara values it at $1,350, Holly values it at $2,100, and Josephine values it at $1,100. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Holly for about $2,100.

(b) Maria for about $1,600.

(c) either Holly or Maria for slightly more than $1,600. Which of them actually gets it is randomly determined.

(d) Holly for slightly more than $1,600.

(e) None of the above statements are true.

17.5   An antique cabinet is being sold by means of an English auction. There are four bidders, Maude, Kristina, Zelda, and Betsy. These bidders are unacquainted with each other and do not collude. Maude values the cabinet at $800, Kristina values it at $550, Zelda values it at $1,300, and Betsy values it at $300. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Zelda for about $1,300.

(b) Maude for about $800.

(c) either Zelda or Maude for slightly more than $800. Which of them actually gets it is randomly determined.

(d) Zelda for slightly more than $800.

(e) None of the above statements are true.

17.6   An antique cabinet is being sold by means of an English auction. There are four bidders, Colette, Betsy, Doreen, and Elsie. These bidders are unacquainted with each other and do not collude. Colette values the cabinet at $4,000, Betsy values it at $3,750, Doreen values it at $4,500, and Elsie values it at $3,500. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Doreen for about $4,500.

(b) Colette for about $4,000.

(c) either Doreen or Colette for slightly more than $4,000. Which of them actually gets it is randomly determined.

(d) Doreen for slightly more than $4,000.

(e) None of the above statements are true.

Topic: Auctions

% Correct Responses: 0

Correct Answer: D

Difficulty: 0

Discrimination Index: 0

17.7 An antique cabinet is being sold by means of an English auction. There are four bidders, Susan, Kristina, Katerina, and Heidi. These bidders are unacquainted with each other and do not collude. Susan values the cabinet at $4,800, Kristina values it at $4,550, Katerina values it at $5,300, and Heidi values it at $4,300. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Katerina for about $5,300.

(b) Susan for about $4,800.

(c) either Katerina or Susan for slightly more than $4,800. Which of them actually gets it is randomly determined.

(d) Katerina for slightly more than $4,800.

(e) None of the above statements are true.

Topic: Auctions

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

17.8

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Josh, Sheila, and Elsie. First Fiddler's does not know the willingness to pay of these three bidders for the house, but on the basis of its previous experience, the bank believes that each of these bidders has a probability of 1/3 of valuing it at $700,000, a probability of 1/3 of valuing at $500,000, and a probability of 1/3 of valuing it at $200,000. First Fiddler's believes that these probabilities are independent between buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest option.)

(a) $500,000

(b) $474,074

(c) $466,667

(d) $700,000

(e) $200,000

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

17.9

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Tim, Katerina, and Elsie. First Fiddler's does not know the willingness to pay of these three bidders for the house, but on the basis of its previous experience, the bank believes that each of these bidders has a probability of 1/3 of valuing it at \$600,000, a probability of 1/3 of valuing at \$500,000, and a probability of 1/3 of valuing it at \$300,000. First Fiddler's believes that these probabilities are independent between buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest option.)

(a) \$500,000

(b) \$474,074

(c) \$466,667

(d) \$600,000

(e) \$300,000

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

17.10

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Boris, Emily, and Fanny. First Fiddler's does not know the willingness to pay of these three bidders for the house, but on the basis of its previous experience, the bank believes that each of these bidders has a probability of 1/3 of valuing it at \$600,000, a probability of 1/3 of valuing at \$400,000, and a probability of 1/3 of valuing it at \$300,000. First Fiddler's believes that these probabilities are independent between buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest option.)

(a) \$400,000

(b) \$425,926

(c) \$433,333

(d) \$600,000

(e) \$300,000

17.11

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Waldo, Heidi, and Isabella. First Fiddler's does not know the willingness to pay of these three bidders for the house, but on the basis of its previous experience, the bank believes that each of these bidders has a probability of 1/3 of valuing it at $600,000, a probability of 1/3 of valuing at $300,000, and a probability of 1/3 of valuing it at $200,000. First Fiddler's believes that these probabilities are independent between buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest option.)

(a) $300,000

(b) $351,852

(c) $366,667

(d) $600,000

(e) $200,000

17.12

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Roger, Wendy, and Doreen. First Fiddler's does not know the willingness to pay of these three bidders for the house, but on the basis of its previous experience, the bank believes that each of these bidders has a probability of 1/3 of valuing it at $700,000, a probability of 1/3 of valuing at $400,000, and a probability of 1/3 of valuing it at $200,000. First Fiddler's believes that these probabilities are independent between buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest option.)

(a) $400,000

(b) $425,926

(c) $433,333

(d) $700,000

(e) $200,000

17.13   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $900. There are two bidders. The dealer believes that there are only three possible values, $6,300, $2,700, and $900, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the car is approximately

(a) $4,500.

(b) $3,300.

(c) $2,700.

(d) $2,100.

(e) $6,300.

17.14   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $3,600. There are two bidders. The dealer believes that there are only three possible values, $5,400, $4,500, and $3,600, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the car is approximately

(a) $4,950.

(b) $4,500.

(c) $4,500.

(d) $4,100.

(e) $5,400.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

17.15 A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $2,700. There are two bidders. The dealer believes that there are only three possible values, $8,100, $5,400, and $2,700, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the car is approximately

(a) $6,750.

(b) $5,400.

(c) $5,400.

(d) $4,200.

(e) $8,100.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

17.16 A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $900. There are two bidders. The dealer believes that there are only three possible values, $3,600, $2,700, and $900, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the car is approximately

(a) $3,150.

(b) $2,400.

(c) $2,700.

(d) $1,800.

(e) $3,600.

17.17   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $900. There are two bidders. The dealer believes that there are only three possible values, $5,400, $3,600, and $900, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the car is approximately

(a) $4,500.

(b) $3,300.

(c) $3,600.

(d) $2,300.

(e) $5,400.

17.18   A dealer decides to sell an oil painting by means of an English auction with a reservation price just slightly below $81,000. If he fails to get his reservation price for the painting, he will burn it. There are two bidders. The dealer believes that there are only three possible values, $90,000, $81,000, and $45,000, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $73,000.

(b) $81,000.

(c) $45,000.

(d) $63,000.

(e) $72,000.

17.19   A dealer decides to sell an oil painting by means of an English auction with a reservation price just slightly below $45,000. If he fails to get his reservation price for the painting, he will burn it. There are two bidders. The dealer believes that there are only three possible values, $63,000, $45,000, and $27,000, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $42,000.

(b) $45,000.

(c) $27,000.

(d) $36,000.

(e) $45,000.

17.20   A dealer decides to sell an oil painting by means of an English auction with a reservation price just slightly below $90,000. If he fails to get his reservation price for the painting, he will burn it. There are two bidders. The dealer believes that there are only three possible values, $117,000, $90,000, and $45,000, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $83,000.

(b) $90,000.

(c) $45,000.

(d) $67,500.

(e) $84,000.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

17.21   A dealer decides to sell an oil painting by means of an English auction with a reservation price just slightly below $72,000. If he fails to get his reservation price for the painting, he will burn it. There are two bidders. The dealer believes that there are only three possible values, $117,000, $72,000, and $36,000, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $69,000.

(b) $72,000.

(c) $36,000.

(d) $54,000.

(e) $75,000.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

17.22   A dealer decides to sell an oil painting by means of an English auction with a reservation price just slightly below $63,000. If he fails to get his reservation price for the painting, he will burn it. There are two bidders. The dealer believes that there are only three possible values, $108,000, $63,000, and $27,000, that each bidder's willingness to pay might take. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities for each of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $61,000.

(b) $63,000.

(c) $27,000.

(d) $45,000.

(e) $66,000.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

17.23 Herb's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two-thirds of the cars that are auctioned are lemons and one-third are good used cars. A good car is worth $1,500 to any buyer. A lemon is worth only $150 to a buyer. Most buyers can do no better than random at picking good cars from the lot. There is only one exception, Al Crankcase. Al can sometimes but not always detect lemons by means of a subtle test. A good car will never fail Al's test, but approximately half of the lemons fail his test. Al attends every auction, tests every car, and always bids his expected value. Normal bidders bid less than the expected value for a randomly selected car but more than the value of a lemon.

(a) Al will bid $825 for cars that pass his test and $150 for cars that fail his test. Normal bidders will get only lemons.

(b) Al will bid $750 for cars that pass his test and $500 for cars that fail his test. Normal bidders will get only lemons

(c) Al will bid $500 for cars that pass his test and $150 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) Al will bid $600 for cars that pass his test and $250 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) Al will bid $300 for cars that pass his test and $150 for cars that fail his test. Normal bidders will get good cars 1/12 of the time.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

17.24 A seller knows that there are two bidders for the object she is selling. She believes that with probability 1/2, one has a buyer value of $5 and the other has a buyer value of $10 and, with probability 1/2, one has a buyer value of $8 and the other has a buyer value of $15. She knows that bidders will want to buy the object so long as they can get it for their buyer value or less. She sells it in an English auction with a reserve price which she must set before the auction starts. To maximize her expected profits, she should set the reserve price at

(a) $5.

(b) $10.

(c) $8.

(d) $13.

(e) $15.

17.25   A seller knows that there are two bidders for the object he is selling. He believes that with probability 1/2, one has a buyer value of $5 and the other has a buyer value of $12 and, with probability 1/2, one has a buyer value of $10 and the other has a buyer value of $30. He knows that bidders will want to buy the object so long as they can get it for their buyer value or less. He sells it in an English auction with a reserve price which he must set before the auction starts. To maximize his expected profits, he should set the reserve price at

(a) $30.

(b) $5.

(c) $12.

(d) $10.

(e) $20.

17.26   A seller decides to sell an object by means of a sealed-bid, second-price auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $500 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $500

(b) $300

(c) $200

(d) $180

(e) $260

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

17.27 A seller decides to sell an object by means of a sealed-bid, second-price auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $500 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $500

(b) $300

(c) $200

(d) $180

(e) $260

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

17.28 A seller decides to sell an object by means of a sealed-bid, second-price auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $600 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $600

(b) $350

(c) $225

(d) $200

(e) $300

17.29   A seller decides to sell an object by means of a sealed-bid, second-price auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $400 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $400

(b) $250

(c) $175

(d) $160

(e) $220

17.30   A seller decides to sell an object by means of a sealed-bid, second-price auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $500 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $500

(b) $300

(c) $200

(d) $180

(e) $260

Topic: Auctions
Difficulty: 0
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: A

17.31   A seller decides to sell an object by means of an English auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $600 and a probability of 1/2 that the bidder's value is $300. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $375

(b) $420

(c) $450

(d) $600

(e) $300

Topic: Auctions
Difficulty: 0
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: A

17.32   A seller decides to sell an object by means of an English auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $500 and a probability of 1/2 that the bidder's value is $200. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $275

(b) $320

(c) $350

(d) $500

(e) $200

17.33   A seller decides to sell an object by means of an English auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $400 and a probability of 1/2 that the bidder's value is $300. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $325

(b) $340

(c) $350

(d) $400

(e) $300

17.34   A seller decides to sell an object by means of an English auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $400 and a probability of 1/2 that the bidder's value is $100. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $175

(b) $220

(c) $250

(d) $400

(e) $100

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

17.35   A seller decides to sell an object by means of an English auction without a reservation price. There are two bidders. The seller believes that for each of the two bidders there is a probability of 1/2 that the bidder's value for the object is $600 and a probability of 1/2 that the bidder's value is $300. The seller believes that these probabilities are independent between bidders. If the bidders bid rationally, what is the seller's expected revenue from the auction?

(a) $375

(b) $420

(c) $450

(d) $600

(e) $300

Chapter 18

Topic: Technology   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

18.1   The production set of a firm is the set of all products the firm can produce.

Topic: Technology   Difficulty: 1
% Correct Responses: 72   Discrimination Index: 49
Correct Answer: False

18.2   A production isoquant is a locus of combinations of inputs that are equally profitable.

Topic: Technology   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 32
Correct Answer: False

18.3   If there are constant returns to scale, then doubling the amount of any input will exactly double the amount of output.

Topic: Technology   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

18.4   The economist's distinction between long and short run captures the idea that quantities of some factor inputs can be varied in the short run but not in the long run.

Topic: Technology   Difficulty: 2
% Correct Responses: 79   Discrimination Index: 23
Correct Answer: True

18.5   If the production function is $f(x,y) = min\{2x+y, x+2y\}$, then there are constant returns to scale.

Topic: Technology   Difficulty: 2
% Correct Responses: 84   Discrimination Index: 10
Correct Answer: True

18.6   If the production function is $f(x,y) = x + min\{x,y\}$, then there are constant returns to scale.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

18.7   If the production function is $f(x, y) = min\{12x, 3y\}$, then there is convexity in production.

Topic: Technology   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 14
Correct Answer: False

18.8   If the production function is $f(x_1, x_2) = x_1 x_2$, then there are constant returns to scale.

Topic: Technology   Difficulty: 2
% Correct Responses: 55   Discrimination Index: 38
Correct Answer: True

18.9   It is possible to have decreasing marginal products for all inputs, and yet have increasing returns to scale.

Topic: Technology   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 24
Correct Answer: True

18.10   A production function has well-defined marginal products at every input combination. If Factor x is shown on the horizontal axis and Factor y is shown on the vertical axis, the slope of the isoquant through a point $(x*, y*)$ is the negative of the ratio of the marginal product of x to the marginal product of y.

Topic: Technology   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 10
Correct Answer: False

18.11   The production function $f(x, y) = x^{2/3} + y^{2/3}$ has increasing returns to scale.

Topic: Technology   Difficulty: 1
% Correct Responses: 96   Discrimination Index: 2
Correct Answer: True

18.12   The production function $f(x, y) = x + y$ has constant returns to scale.

Topic: Technology   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: True

18.13   If there is one input used in production and if there are decreasing returns to scale, then the marginal product for the input will be diminishing.

Topic: Technology   Difficulty: 1
% Correct Responses: 92   Discrimination Index: 7
Correct Answer: False

18.14   A firm's production function is $f(x_1, x_2) = x_1 + 2x_2$. This means that x_2 is twice as expensive as x_1.

Topic: Technology   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 20
Correct Answer: True

18.15   A firm has two variable factors and a production function $f(x_1, x_2) = (2x_1 + 4x_2)^{1/2}$. The technical rate of substitution between x_1 and x_2 is constant.

Topic: Technology   Difficulty: 1
% Correct Responses: 38   Discrimination Index: 8
Correct Answer: False

18.16   If the marginal product of each factor decreases as the amount of that factor used increases, then there must be decreasing returns to scale.

Topic: Technology
% Correct Responses: 92
Correct Answer: B

Difficulty: 1
Discrimination Index: 13

18.1   In any production process, the marginal product of labor equals:

(a) the value of total output minus the cost of the fixed capital stock.

(b) the change in output per unit change in labor input for "small" changes in the amount of input.

(c) total output divided by total labor inputs.

(d) total output produced with the given labor inputs.

(e) the average output of the least skilled workers employed by the firm.

Topic: Technology
% Correct Responses: 67
Correct Answer: A

Difficulty: 2
Discrimination Index: 41

18.2   If a firm moves from one point on a production isoquant to another point on the same isoquant, which of the following will certainly NOT happen?

(a) a change in the level of output

(b) a change in the ratio in which the inputs are combined

(c) a change in the marginal products of the inputs

(d) a change in the rate of technical substitution

(e) a change in profitability

Topic: Technology
% Correct Responses: 0
Correct Answer: A

Difficulty: 2
Discrimination Index: 0

18.3   A firm has the production function $f(x, y) = x^{.5} + y$ where x is the amount of factor x it uses and y is the amount of factor y. On a diagram we put x on the horizontal axis and y on the vertical axis. We draw some isoquants. Now we draw a straight line on the graph and we notice that the slopes of all the isoquants that it meets have the same slope at the point where they meet this line. The straight line we drew was:

(a) vertical.

(b) horizontal.

(c) diagonal through the origin with slope .5.

(d) diagonal with slope 2.

(e) diagonal with slope greater than 2.

Topic: Technology
% Correct Responses: 72
Correct Answer: E

Difficulty: 2
Discrimination Index: 24

18.4   Which of the following production functions exhibit constant returns to scale? In each case y is output and K and L are inputs. (1) $y = K^{1/2}L^{2/3}$ (2) $y = 3K^{1/2}L^{1/2}$ (3) $y = K^{1/2} + L^{1/2}$ (4)$y = 2K + 3L$.

(a) 1,2, and 4

(b) 2,3, and 4

(c) 1,3, and 4

(d) 2 and 3

(e) 2 and 4

Topic: Technology
% Correct Responses: 73
Correct Answer: D

Difficulty: 2
Discrimination Index: 54

18.5   A firm has the production function, $f(x,y) = 20x^{3/5}y^{2/5}$. The slope of the firm's isoquant at the point $(x,y) = (80, 10)$ is: (Pick the closest one.)

(a) -8.

(b) -1.50.

(c) -0.67.

(d) -0.19.

(e) -4.

Topic: Technology
% Correct Responses: 73
Correct Answer: D

Difficulty: 2
Discrimination Index: 54

18.6   A firm has the production function, $f(x,y) = 40x^{2/5}y^{3/5}$. The slope of the firm's isoquant at the point $(x,y) = (70, 50)$ is: (Pick the closest one.)

(a) -1.40.

(b) -0.67.

(c) -1.50.

(d) -0.48.

(e) -0.70.

Topic: Technology   Difficulty: 1
% Correct Responses: 51   Discrimination Index: 11
Correct Answer: C

18.7   A firm uses only two inputs to produce its output. These inputs are perfect substitutes. This firm:

(a) must have increasing returns to scale.

(b) must have constant returns to scale.

(c) could have increasing returns to scale, constant returns to scale, or decreasing returns to scale.

(d) must have decreasing returns to scale.

(e) must have decreasing returns to scale in the short run and constant returns to scale in the long run.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

18.8   A firm has the production function $f(X,Y) = X^{3/4}Y^{1/4}$ where X is the amount of factor x used and Y is the amount of factor y used. On a diagram we put X on the horizontal axis and Y on the vertical axis. We draw some isoquants. Now we draw a straight line on the graph and we notice that wherever this line meets an isoquant, the isoquant has a slope of -3. The straight line we drew:

(a) is vertical.

(b) is horizontal.

(c) is a ray through the origin with slope 1.

(d) is a ray through the origin with slope 2.

(e) has a negative slope.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

18.9   A firm has the production function $f(X,Y) = X^{2/3}Y^{1/3}$ where X is the amount of factor x used and Y is the amount of factor y used. On a diagram we put X on the horizontal axis and Y on the vertical axis. We draw some isoquants. Now we draw a straight line on the graph and we notice that wherever this line meets an isoquant, the isoquant has a slope of -4. The straight line we drew:

(a) is vertical.

(b) is horizontal.

(c) is a ray through the origin with slope 2.

(d) is a ray through the origin with slope 3.

(e) has a negative slope.

Topic: Technology

Difficulty: 1

% Correct Responses: 31

Discrimination Index: 32767

Correct Answer: C

18.10 If output is produced with two factors of production and with increasing returns to scale:

(a) there cannot be diminishing marginal rate of substitution.

(b) all inputs must have increasing marginal products.

(c) on a graph of production isoquants, moving along a ray from the origin, output more than doubles as the distance from the origin doubles.

(d) the marginal product of at least one input must be increasing.

(e) all inputs must have decreasing marginal products.

Topic: Technology

Difficulty: 2

% Correct Responses: 55

Discrimination Index: 46

Correct Answer: B

18.11 A firm has the production function $f(x_1, x_2) = (x_1^b + x_2^b)^c$ where $b > 0$ and $c > 0$. This firm will have:

(a) increasing returns to scale if and only if $2b + c > 1$.

(b) increasing returns to scale if and only if $bc > 1$.

(c) increasing returns to scale if and only if $b + c > 1$.

(d) constant returns to scale if and only if $c = 1$.

(e) constant returns to scale if and only if $b = c$.

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

18.12 A firm has the production function $f(x, y) = x + min\{x, y\}$. The isoquants for the firm:

(a) are L shaped with the corners of the L on the line $y = x$.

(b) are L shaped with the corners of the L on the line $y = x + 1$.

(c) consist of two line segments, one vertical and the other with a slope of -1.

(d) consist of two line segments, one horizontal and the other with a slope of -1.

(e) are upside down L shaped.

Topic: Technology
% Correct Responses: 32
Correct Answer: D

Difficulty: 3
Discrimination Index: 41

18.13 Suppose that the production function is $f(x_1, x_2) = (x_1^a + x_2^a)^b$, where a and b are positive constants. For what values of a and b is there diminishing technical rate of substitution?

(a) for any value of a if $b < 1$.

(b) for any values of a and b if $ab < 1$.

(c) for any values of a and b if $a > b$.

(d) for any value of b if $a < 1$.

(e) None of the above.

Topic: Technology
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

18.14 A firm has the production function $f(x_1, x_2) = x_1^{0.40} x_2^{0.20}$. The isoquant on which output is $40^{2/10}$ has the equation:

(a) $x_2 = 40x_1^{-2}$.

(b) $x_2 = 40x_1^5$.

(c) $x_1/x_2 = 2$.

(d) $x_2 = 40x_1^{-0.20}$

(e) $x_1 = 0.20x_2^{-0.80}$.

Topic: Technology
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

18.15 A firm has the production function $f(x_1, x_2) = x_1^{1.20} x_2^{0.60}$. The isoquant on which output is $30^{6/10}$ has the equation:

(a) $x_2 = 30x_1^{-2}$.

(b) $x_2 = 30x_1^{1.67}$.

(c) $x_1/x_2 = 2$.

(d) $x_2 = 30x_1^{-0.60}$

(e) $x_1 = 0.60x_2^{-0.40}$.

Topic: Technology

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 20

Correct Answer: E

18.16   A firm has the production function $f(x,y) = x^1 y^{0.80}$. This firm has:

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) none of the above.

Topic: Technology

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 20

Correct Answer: E

18.17   A firm has the production function $f(x,y) = x^{1.30} y^1$. This firm has:

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) none of the above.

Topic: Technology

Difficulty: 1

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: B

18.18   A firm uses 3 factors to produce its output. Its production function is $f(x,y,z) = min\{x^3/y, y^2, (z^4 - x^4)/y^2\}$. If the amount of each input is multiplied by 6, its output will be multiplied by:

(a) 216

(b) 36

(c) 6

(d) 0.16

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology

Difficulty: 1

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: B

18.19   A firm uses 3 factors to produce its output. Its production function is $f(x, y, z) = min\{x^2/y, y^1, (z^3 - x^3)/y^2\}$. If the amount of each input is multiplied by 4, its output will be multiplied by:

(a) 16

(b) 4

(c) 1

(d) 0.80

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology

Difficulty: 2

% Correct Responses: 65

Discrimination Index: 90

Correct Answer: A

18.20   A firm has a production function $f(x, y) = 1(x^{0.80} + y^{0.80})^4$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has:

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology

Difficulty: 2

% Correct Responses: 65

Discrimination Index: 90

Correct Answer: A

18.21   A firm has a production function $f(x, y) = 1.10(x^{0.20} + y^{0.20})^5$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has:

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

18.22   The production function $Q = 50K^{0.75}L^{0.75}$ exhibits

(a) increasing returns to scale.

(b) constant returns to scale.

(c) decreasing returns to scale.

(d) increasing, then diminishing returns to scale.

(e) negative returns to scale.

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

18.23   The production function $Q = 50K^{0.75}L^{0.50}$ exhibits

(a) increasing returns to scale.

(b) constant returns to scale.

(c) decreasing returns to scale.

(d) increasing, then diminishing returns to scale.

(e) negative returns to scale.

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

18.24   The UJava espresso stand needs two inputs, labor and coffee beans, to produce its only output, espresso. Producing an espresso always requires the same amount of coffee beans, and the same amount of time. Which of the following production functions would appropriately describe the production process at UJava, where B represents ounces of coffee beans, and L represents hours of labor?

(a) $Q = B^{0.60}L^{0.40}$

(b) $Q = B/2 + L/30$

(c) $Q = min(2B, 60L)$

(d) $Q = 0.5B + 0.5L^{0.5}$\$

(e) none of the above.

Topic: Technology Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: C

18.25 The UJava espresso stand needs two inputs, labor and coffee beans, to produce its only output, espresso. Producing an espresso always requires the same amount of coffee beans, and the same amount of time. Which of the following production functions would appropriately describe the production process at UJava, where B represents ounces of coffee beans, and L represents hours of labor?

(a) $Q = B^{0.70}L^{0.30}$

(b) $Q = B/2 + L/30$

(c) $Q = min(2B, 60L)$

(d) $Q = 0.5B + 0.5L^{0.5}$

(e) none of the above.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

18.1   On separate axes, draw typical production isoquants for each of the following production functions. a) $f(x,y) = min\{2x, x+y\}$ b) $f(x,y) = xy$ c) $f(x,y) = x + min\{x,y\}$ d) $f(x,y) = x + y^{1/2}$.

Answer: For a), the isoquants have a kink at the line $x = y$. At a typical point on this line, say $x = y = 3$, the isoquant has a vertical segment going all the way to the sky and another segment running from $(3,3)$ to $(6,0)$. *b*) These are rectangular hyperbolas. c)If x is on the horizontal axis and y on the vertical axis, an isoquant has a kink on the line $x = y$. To the left of this line, an isoquant has the slope -1, to the right of this line, an isoquant has slope -1. Above this line the isoquant is vertical. *d*) The isoquants are convex to the origin. If you draw a horizontal line through two or more isoquants, they will all have the same slope where they meet this line.

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

18.2   For each of the following production functions, comment on the ability to substitute capital for labor.(a) $Q = K + L$
(*b*) $Q = K^{0.5}L^{0.5}$
(*c*) $Q = min(K, L)$
(*d*) Why would this information be of interest to a manager?

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

18.3   For each of the following production functions, draw a diagram showing the general shape of its corresponding isoquant. Comment on the ease at which labor and capital can be substituted for one another relative to the other two production functions.
(a) $Q = K + L$
(*b*) $Q = K^{0.5}L^{0.5}$
(*c*) $Q = min(K, L)$

Chapter 19

Topic: Profit Maximization
% Correct Responses: 96
Correct Answer: False

Difficulty: 1
Discrimination Index: 25

19.1 The weak axiom of profit maximizing behavior states that in a modern mixed economy, firms have only a weak incentive to maximize profits.

Topic: Profit Maximization
% Correct Responses: 86
Correct Answer: False

Difficulty: 1
Discrimination Index: 30

19.2 A fixed factor is a factor of production that is used in fixed proportion to the level of output.

Topic: Profit Maximization
% Correct Responses: 92
Correct Answer: True

Difficulty: 1
Discrimination Index: 7

19.3 The marginal product of a factor is just the derivative of the production function with respect to the amount of this factor, holding the amounts of other factor inputs constant.

Topic: Profit Maximization
% Correct Responses: 37
Correct Answer: False

Difficulty: 2
Discrimination Index: 19

19.4 If the value of the marginal product of factor x increases as the quantity of x increases, and the value of the marginal product of x is equal to the wage rate, then the profit maximizing amount of x is being used.

Topic: Profit Maximization
% Correct Responses: 43
Correct Answer: True

Difficulty: 2
Discrimination Index: 45

19.5 If the price of the output of a profit-maximizing, competitive firm rises and all other prices stay constant, then the firm's output cannot fall.

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 78   Discrimination Index: 12
Correct Answer: True

19.6   If a profit-maximizing competitive firm has constant returns to scale, then its long run profits must be zero.

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 17
Correct Answer: False

19.7   Just as in the theory of utility maximizing consumers, the theory of profit maximizing firms allows the possibility of "Giffen factors". These are factors for which a fall in price leads to a fall in demand.

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 92   Discrimination Index: 15
Correct Answer: False

19.8   If the value of the marginal product of labor exceeds the wage rate, then a competitive, profit-maximizing firm would want to hire less labor.

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 63   Discrimination Index: 40
Correct Answer: False

19.9   A firm produces one input with one output and has decreasing returns to scale. The price that it pays per unit of input and the price it gets per unit of output are independent of the amount that this firm buys or sells. If the government taxes its net profits at some percentage rate and subsidizes its inputs at the same percentage rate, the firm's profit maximizing output will not change.

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 36
Correct Answer: D

19.1   A competitive firm produces output using three fixed factors and one variable factor. The firm's short run production function is $q = 163x - 2x^2$, where x is the amount of variable factor used. The price of output is \$3 per unit and the price of the variable factor is \$9 per unit. In the short run, how many units of x should the firm use?

(a) 20

(b) 80

(c) 19

(d) 40

(e) None of the above.

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 36
Correct Answer: D

19.2   A competitive firm produces output using three fixed factors and one variable factor. The firm's short run production function is $q = 455x - 5x^2$, where x is the amount of variable factor used. The price of output is \$3 per unit and the price of the variable factor is \$15 per unit. In the short run, how many units of x should the firm use?

(a) 22

(b) 90

(c) 31

(d) 45

(e) None of the above.

Topic: Profit Maximization
% Correct Responses: 69
Correct Answer: A

Difficulty: 2
Discrimination Index: 50

19.3   A competitive firm produces a single output using several inputs. The price of output rises by \$2 per unit. The price of one of the inputs increases by \$5 and the quantity of this input that the firm uses increases by 6 units. The prices of all other inputs stay unchanged. From the weak axiom of profit maximization we can tell that:

(a) the output of the good must have increased by at least 15 units.

(b) the inputs of the other factors must have stayed constant.

(c) the output of the good must have decreased by at least 7.50 units.

(d) the inputs of at least one of the other factors must have decreased by at least 6 units.

(e) the inputs of at least one of the other factors must have increased by at least 6 units.

Topic: Profit Maximization
% Correct Responses: 69
Correct Answer: A

Difficulty: 2
Discrimination Index: 50

19.4   A competitive firm produces a single output using several inputs. The price of output rises by \$3 per unit. The price of one of the inputs increases by \$3 and the quantity of this input that the firm uses increases by 6 units. The prices of all other inputs stay unchanged. From the weak axiom of profit maximization we can tell that:

(a) the output of the good must have increased by at least 6 units.

(b) the inputs of the other factors must have stayed constant.

(c) the output of the good must have decreased by at least 3 units.

(d) the inputs of at least one of the other factors must have decreased by at least 6 units.

(e) the inputs of at least one of the other factors must have increased by at least 6 units.

Topic: Profit Maximization
% Correct Responses: 13
Correct Answer: E

Difficulty: 2
Discrimination Index: 17

19.5   If there is perfect certainty, a competitive firm will necessarily:

(a) seek to maximize its immediate profits rather than long run returns because otherwise it will go broke.

(b) maximize the ratio of the present value of its sales to the present value of its costs.

(c) equalize its profits in all periods.

(d) equalize its sales in all periods.

(e) None of the above.

Topic: Profit Maximization

% Correct Responses: 55

Correct Answer: B

Difficulty: 2

Discrimination Index: 37

19.6 A firm produces one output using one input. When the cost of the input was 3 and the price of the output was 3, the firm used 6 units of input to produce 18 units of output. Later, when the cost of the input was 7 and the price of the output was 4, the firm used 5 units of input to produce 20 units of output.

(a) This behavior is consistent with WAPM.

(b) This behavior is not consistent with WAPM.

(c) This behavior is impossible no matter what the firm is trying to do.

(d) This behavior suggests the presence of increasing returns to scale.

(e) This behavior suggests the presence of decreasing returns to scale.

Topic: Profit Maximization

% Correct Responses: 88

Correct Answer: C

Difficulty: 1

Discrimination Index: 27

19.7 A profit-maximizing competitive firm uses just one input, x. Its production function is $q = 8x^{1/2}$. The price of output is 16 and the factor price is 8. The amount of the factor that the firm demands is:

(a) 10.

(b) 22.63.

(c) 64.

(d) 48.

(e) None of the above.

Topic: Profit Maximization

% Correct Responses: 88

Correct Answer: C

Difficulty: 1

Discrimination Index: 27

19.8 A profit-maximizing competitive firm uses just one input, x. Its production function is $q = 8x^{1/2}$. The price of output is 40 and the factor price is 8. The amount of the factor that the firm demands is:

(a) 13.

(b) 35.78.

(c) 400.

(d) 384.

(e) None of the above.

Topic: Profit Maximization
% Correct Responses: 36
Correct Answer: A

Difficulty: 2
Discrimination Index: 28

19.9 A competitive, profit-maximizing firm uses two inputs a and b. Its production function is $F(a,b) = a^{1/2} + b^{1/2}$. Its output sells for \$5 per unit. The price of input a is \$1 per unit. If the price of output rises to \$6 per unit but factor prices do not change,

(a) it will increase its purchases of factor a by 11/4 units.

(b) it will increase its purchases of factor a by 9/4 units.

(c) it will increase its purchases of factor a by 3/4 units.

(d) we would need to know the price of factor b to be able to determine the change in demand for a.

(e) none of the above is true.

Topic: Profit Maximization
% Correct Responses: 44
Correct Answer: A

Difficulty: 2
Discrimination Index: 40

19.10 A competitive firm's production function is $f(x_1, x_2) = 4x_1^{1/2} + 10x_2^{1/2}$. The price of factor 1 is 1 and the price of factor 2 is 1. The price of output is 2. What is the profit-maximizing quantity of output?

(a) 116

(b) 232

(c) 112

(d) 244

(e) 104

Topic: Profit Maximization
% Correct Responses: 44
Correct Answer: A

Difficulty: 2
Discrimination Index: 40

19.11 A competitive firm's production function is $f(x_1, x_2) = 4x_1^{1/2} + 6x_2^{1/2}$. The price of factor 1 is 1 and the price of factor 2 is 2. The price of output is 4. What is the profit-maximizing quantity of output?

(a) 68

(b) 136

(c) 64

(d) 148

(e) 56

Topic: Profit Maximization

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

19.12 Jiffy-pol Consultants is paid $1,000,000 for each percent of the vote that Senator Sleaze receives in the upcoming election. Sleaze's share of the vote is determined by the number of slanderous campaign ads run by Jiffy-Pol according to the function $S = 100N/(N + 1)$, where N is the number of ads. If each ad costs $3,600 approximately how many ads should Jiffy-pol buy in order to maximize its profits?

(a) 3,329

(b) 1,666

(c) 72

(d) 1,702

(e) 833

Topic: Profit Maximization

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

19.13 Jiffy-pol Consultants is paid $1,000,000 for each percent of the vote that Senator Sleaze receives in the upcoming election. Sleaze's share of the vote is determined by the number of slanderous campaign ads run by Jiffy-Pol according to the function $S = 100N/(N + 1)$, where N is the number of ads. If each ad costs $6,400 approximately how many ads should Jiffy-pol buy in order to maximize its profits?

(a) 2,495

(b) 1,249

(c) 128

(d) 1,313

(e) 625

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

19.14   A competitive firm uses a single input, x, to produce its output, y. The firm's production function is given by $y = x^{3/2}$ for quantities of x between 0 and 4. For quantities of x greater than 4, the firm's output is $y = 4 + x$. If the price of the output y is 1 and the price of the input x is 3, how much x should the firm use to maximize its profit?

(a) 16/9

(b) 4

(c) 0

(d) 4/3

(e) 9/2

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 40
Correct Answer: B

19.15   The production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 12 and the price of output is 6, how many units of labor will the firm hire?

(a) 16

(b) 8

(c) 4

(d) 24

(e) None of the above.

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 40
Correct Answer: B

19.16   The production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 8 and the price of output is 6, how many units of labor will the firm hire?

(a) 54

(b) 27

(c) 13.5

(d) 81

(e) None of the above.

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 88

Discrimination Index: 40

Correct Answer: A

19.17 The production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 80 per unit and the cost of the input is 20 per unit, how much profits will the firm make if it maximizes profits?

(a) 1,280

(b) 638

(c) 2,564

(d) 1,265

(e) 643

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 88

Discrimination Index: 40

Correct Answer: A

19.18 The production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 80 per unit and the cost of the input is 35 per unit, how much profits will the firm make if it maximizes profits?

(a) 731.43

(b) 363.71

(c) 1,466.86

(d) 716.43

(e) 368.71

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 80

Discrimination Index: 45

Correct Answer: C

19.19 The production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 8 and the price of factor 2 is 4, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 2x_2$

(c) $x_1 = 0.50x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 4x_2$

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 45
Correct Answer: C

19.20   The production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 16 and the price of factor 2 is 32, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 0.50 x_2$

(c) $x_1 = 2x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 32 x_2$

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 82   Discrimination Index: 20
Correct Answer: A

19.21   When Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$1 per bushel and the price of fertilizer is \$0.40 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 120

(b) 240

(c) 64

(d) 248

(e) 200

Topic: Profit Maximization
% Correct Responses: 82
Correct Answer: A

Difficulty: 2
Discrimination Index: 20

19.22 When Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1-(N/200)$ bushels of corn. If the price of corn is \$4 per bushel and the price of fertilizer is \$0.40 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 180

(b) 360

(c) 94

(d) 368

(e) 200

Topic: Profit Maximization
% Correct Responses: 0
Correct Answer: E

Difficulty: 0
Discrimination Index: 0

19.23 If the short run marginal cost of producing a good is \$20 for the first 200 units and \$30 for each additional unit beyond 200, then in the short run, if the market price of output is 29, a profit maximizing firm will:

(a) produce a level of output where marginal revenue equals marginal cost.

(b) produce as much output as possible since there are constant returns to scale.

(c) produce up to the point where average cost equals 29.

(d) not produce at all, since marginal cost is increasing.

(e) produce exactly 200 units.

Topic: Profit Maximization
% Correct Responses: 0
Correct Answer: E

Difficulty: 0
Discrimination Index: 0

19.24 If the short run marginal cost of producing a good is \$20 for the first 300 units and \$30 for each additional unit beyond 300, then in the short run, if the market price of output is 27, a profit maximizing firm will:

(a) produce a level of output where marginal revenue equals marginal cost.

(b) produce as much output as possible since there are constant returns to scale.

(c) produce up to the point where average cost equals 27.

(d) not produce at all, since marginal cost is increasing.

(e) produce exactly 300 units.

Topic: Profit Maximization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

19.25   Diesel Dan is a contract truck driver. While his revenue is \$2.50 per mile driven, the faster he drives, the greater the risk of a speeding ticket. The cost of driving his truck one hour at a speed of S miles per hour is
$C(S) = e^{S-(60/3)}$
To maximize his profit, Dan should drive

(a) 60 miles per hour.

(b) 60.92 miles per hour.

(c) 62.75 miles per hour.

(d) 66.04 miles per hour.

(e) 70.20 miles per hour.

Topic: Profit Maximization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

19.26   Diesel Dan is a contract truck driver. While his revenue is \$1.50 per mile driven, the faster he drives, the greater the risk of a speeding ticket. The cost of driving his truck one hour at a speed of S miles per hour is
$C(S) = e^{S-(50/3)}$
To maximize his profit, Dan should drive

(a) 50 miles per hour.

(b) 50.41 miles per hour.

(c) 51.22 miles per hour.

(d) 54.51 miles per hour.

(e) 58.67 miles per hour.

Topic: Profit Maximization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

19.27 During the height of the pet rock craze in the 1970's, the price elasticity of demand was estimated to be 1.10. Since pet rocks have a marginal cost of zero, a profit maximizing seller of pet rocks would

(a) increase prices.

(b) decrease prices.

(c) leave prices unchanged.

(d) need more detailed market information before making any pricing changes.

(e) diversify into selling Karen Carpenter LP's.

Topic: Profit Maximization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

19.28 During the height of the pet rock craze in the 1970's, the price elasticity of demand was estimated to be 1.50. Since pet rocks have a marginal cost of zero, a profit maximizing seller of pet rocks would

(a) increase prices.

(b) decrease prices.

(c) leave prices unchanged.

(d) need more detailed market information before making any pricing changes.

(e) diversify into selling Karen Carpenter LP's.

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

19.29   Philip owns and operates a gas station. Philip works 40 hours a week managing the station but doesn't draw a salary. He could earn $700 a week doing the same work for Terrance. The store owes its bank $100,000 and Philip has invested $100,000 of his own money. If Philip's accounting profits are $1,000 per week while the interest on his bank debt is $400 per week, the business' economic profits are

(a) $0 per week.

(b) $ − 100 per week.

(c) $600 per week.

(d) $300 per week.

(e) $1,000 per week.

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

19.30   Philip owns and operates a gas station. Philip works 40 hours a week managing the station but doesn't draw a salary. He could earn $700 a week doing the same work for Terrance. The store owes its bank $100,000 and Philip has invested $100,000 of his own money. If Philip's accounting profits are $1,000 per week while the interest on his bank debt is $500 per week, the business' economic profits are

(a) $0 per week.

(b) $ − 200 per week.

(c) $500 per week.

(d) $300 per week.

(e) $1,000 per week.

Topic: Profit Maximization   Difficulty: 3

% Correct Responses: 0   Discrimination Index: 0

19.1   A competitive firm has a production function described as follows. "Weekly output is the square root of the minimum of the number of units of capital and the number of units of labor employed per week." Suppose that in the short run this firm must use 16 units of capital but can vary its amount of labor freely. a) Write down a formula that describes the marginal product of labor in the short run as a function of the amount of labor used. (Be careful at the boundaries.) b) If the wage is $w = 1$ and the price of output is $p = 4$, how much labor will the firm demand in the short run? c) What if $w = 1$ and $p = 10$? d) Write down an equation for the firm's short run demand for labor as function of w and p.

Answer: a) $MP = 1/(2L^{1/2})$ if $L < 16$, $MP = 0$ if $L > 16$. b)4 c)16 d) $L = (p/2w)^2$

Chapter 20

True-False   Cost Minimization

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 96   Discrimination Index: 25
Correct Answer: True

20.1   Quasi-fixed costs are those costs that can be avoided if and only if a firm produces zero output.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 21
Correct Answer: True

20.2   If there are increasing returns to scale, then average costs are a decreasing function of output.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 33   Discrimination Index: 38
Correct Answer: False

20.3   If there are increasing returns to scale, then costs per unit of output decrease as you move downward and to the right along an isocost line.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 45
Correct Answer: False

20.4   If the production function is $f(x_1, x_2) = min\{x_1, x_2\}$, then the cost function is $c(w_1, w_2, y) = min\{w_1, w_2\}y$.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 46   Discrimination Index: 30
Correct Answer: False

20.5   The conditional factor demand function for factor 1 is a function $x_1(w_1, w_2, y)$ that tells the ratio of price to output for an optimal factor choice of the firm.

Topic: Cost Minimization

Difficulty: 1

% Correct Responses: 88

Discrimination Index: 30

Correct Answer: False

20.6 The cost function $c(w_1, w_2, y)$ expresses the cost per unit of output of producing y units of output if equal amounts of both factors are used.

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 36

Discrimination Index: 35

Correct Answer: False

20.7 A competitive, cost-minimizing firm has the production function $f(x, y) = x + 2y$ and uses positive amounts of both inputs. If the price of x doubles and the price of y triples, then the cost of production will more than double.

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 37

Discrimination Index: 27

Correct Answer: False

20.8 The total cost function $c(w_1, w_2, y)$ expresses the cost per unit of output as a function of input prices and output.

Topic: Cost Minimization

Difficulty: 3

% Correct Responses: 26

Discrimination Index: 25

Correct Answer: False

20.9 A firm uses a single variable input x to produce outputs according to the production function $f(x) = 500x - 4x^2$. This firm has fixed costs of $300. This firm's short run marginal cost curve lies below its short run average variable cost curve for all positive values of x.

Topic: Cost Minimization

Difficulty: 3

% Correct Responses: 26

Discrimination Index: 25

Correct Answer: False

20.10 A firm uses a single variable input x to produce outputs according to the production function $f(x) = 300x - 5x^2$. This firm has fixed costs of $300. This firm's short run marginal cost curve lies below its short run average variable cost curve for all positive values of x.

Multiple Choice   Cost Minimization

20.1   George runs a cookie factory. His cookies are made with sugar, peanut oil, and soybean oil. The number of boxes of cookies that he produces is $f(su, po, so) = min\{su, po + 2so\}$ where su is the number of bags of sugar, po the number of canisters of peanut oil, and so the number of canisters of soybean oil that he uses. The price of a bag of sugar is 11. The price of a canister of peanut oil is 6. The price of a canister of soybean oil is 20. If George makes 254 boxes of cookies in the cheapest way possible, how many canisters of soybean oil will he use?

(a) 127

(b) 0

(c) 84.67

(d) 169.33

(e) 42.33

20.2   George runs a cookie factory. His cookies are made with sugar, peanut oil, and soybean oil. The number of boxes of cookies that he produces is $f(su, po, so) = min\{su, po + 2so\}$ where su is the number of bags of sugar, po the number of canisters of peanut oil, and so the number of canisters of soybean oil that he uses. The price of a bag of sugar is 5. The price of a canister of peanut oil is 9. The price of a canister of soybean oil is 13. If George makes 254 boxes of cookies in the cheapest way possible, how many canisters of soybean oil will he use?

(a) 127

(b) 0

(c) 84.67

(d) 169.33

(e) 42.33

Topic: Cost Minimization
% Correct Responses: 66
Correct Answer: A

Difficulty: 1
Discrimination Index: 50

20.3   A firm's production function is $q = 16x^{0.50}y^{0.50}$ where x and y are the amounts of factors x and y that the firm uses as inputs. If the firm is minimizing unit costs, and if the price of factor x is 6 times the price of factor y, the ratio in which the firm will use factors x and y is closest to:

(a) $x/y = 0.17$.

(b) $x/y = 0.33$.

(c) $x/y = 1$.

(d) $x/y = 2$.

(e) $x/y = 6$.

Topic: Cost Minimization
% Correct Responses: 66
Correct Answer: A

Difficulty: 1
Discrimination Index: 50

20.4   A firm's production function is $q = 26x^{0.33}y^{0.67}$ where x and y are the amounts of factors x and y that the firm uses as inputs. If the firm is minimizing unit costs, and if the price of factor x is 6 times the price of factor y, the ratio in which the firm will use factors x and y is closest to:

(a) $x/y = 0.08$.

(b) $x/y = 0.25$.

(c) $x/y = 0.50$.

(d) $x/y = 2.40$.

(e) $x/y = 12$.

Topic: Cost Minimization
% Correct Responses: 84
Correct Answer: D

Difficulty: 1
Discrimination Index: 13

20.5   A firm has fixed costs of 9,000. Its short run production function is $y = 3x^{1/2}$, where x is the amount of variable factor it uses. The price of the variable factor is \$ 5,000 per unit. Where y is the amount of output, the short run total cost function is:

(a) $9,000/y + 5,000$.

(b) $14,000y$.

(c) $9,000 + 5,000y$.

(d) $9,000 + 555.56y^2$.

(e) $9,000y + 0.56y^2$.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 84   Discrimination Index: 13
Correct Answer: D

20.6   A firm has fixed costs of 7,000. Its short run production function is $y = 8x^{1/2}$, where x is the amount of variable factor it uses. The price of the variable factor is \$ 4,000 per unit. Where y is the amount of output, the short run total cost function is:

(a) $7,000/y + 4,000$.

(b) $11,000y$.

(c) $7,000 + 4,000y$.

(d) $7,000 + 62.50y^2$.

(e) $7,000y + 0.06y^2$.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 81   Discrimination Index: 33
Correct Answer: C

20.7   A firm has two factories. One factory has the cost function $c_1(y_1) = 2y_1^2 + 90$ and the other has the cost function $c_2(y_2) = 6y_2^2 + 40$. If the firm wishes to produce a total of 32 units as cheaply as possible, how many units will be produced in the second factory?

(a) 7

(b) 2

(c) 8

(d) 14

(e) None of the above.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 10
Correct Answer: A

20.8   A company can rent one of two copying machines. The first costs \$34 a month to rent and costs an additional 2 cents per copy to use. The second costs \$107 a month to rent and an additional 1 cent per copy to use. How many copies would the company need to make per month in order for it to be worthwhile to rent the second machine?

(a) 7,300

(b) 13,300

(c) 12,400

(d) 6,900

(e) None of the above.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.9   A firm produces ping pong balls using two inputs. When input prices are $(15, 7)$ the firm uses the input bundle $(17, 71)$. When the input prices are $(12, 24)$ the firm uses the bundle $(77, 4)$. The amount of output is the same in both cases. Is this behavior consistent with WACM?

(a) Yes.

(b) No.

(c) It depends on the level of fixed costs.

(d) We have to know the price of output before we can test WACM.

(e) It depends on the ratio of variable to fixed costs.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 45
Correct Answer: B

20.10   As assistant vice-president in charge of production for a computer firm, you are asked to calculate the cost of producing 170 computers. The production function is $q = min\{x, y\}$ where x and y are the amounts of two factors used. The price of x is 18 and the price of y is 10. What is your answer?

(a) 2,580

(b) 4,760

(c) 8,460

(d) 6,180

(e) None of the above.

20.11   As head of the planning commission of Eastern Motors, your job is to determine where to locate a new plant. The only inputs used in your cars are steel and labor and the production function is Cobb-Douglas where $f(S, L) = S^{.5}L^{\{.5\}}$ where S is tons of steel and L is units of labor. You can locate your plant either in country A or country B. In country A, steel costs \$7 (U.S.) a ton and labor costs \$7 (U.S.) per unit. In country B, steel costs \$8 (U.S.) per ton and labor costs \$6 (U.S.) per unit. In which country should the company locate its new plant so as to minimize costs per unit of output?

(a) Country A

(b) Country B

(c) It doesn't matter, because two locations are equally costly.

(d) Country A if output is greater than 14, otherwise Country B.

(e) There is not enough information to enable us to tell.

20.12   A competitive firm uses two inputs, x and y. Total output is the square root of x times the square root of y. The price of x is 17 and the price of y is 11. The company minimizes its costs per unit of output and spends \$517 on x. How much does it spend on y?

(a) 766

(b) 480

(c) 655

(d) 517

(e) None of the above.

Topic: Cost Minimization
% Correct Responses: 53
Correct Answer: B

Difficulty: 3
Discrimination Index: 44

20.13 A firm has the production function $Q = KL$ where K is the amount of capital and L is the amount of labor it uses as inputs. The cost per unit of capital is a rental fee r and the cost per unit of labor is a wage w. The conditional labor demand function, $L(Q, w, r)$ is:

(a) Qwr.

(b) the square root of Qr/w.

(c) Qw/r.

(d) the square root of Q/rw.

(e) Q/wr.

Topic: Cost Minimization
% Correct Responses: 60
Correct Answer: C

Difficulty: 2
Discrimination Index: 32

20.14 Joe's Bar and Grill uses two inputs, beer and pretzels. When the price of beer was $10 a case and the price of pretzels was $20 a case, Joe used 1 case of beer and 2 cases of pretzels a day. When the price of beer was $20 a case and the price of pretzels was $10 a case, Joe used 2 cases of beer and 1 case of pretzels a day. Joe produced the same output in each of these circumstances. From this information, we can conclude:

(a) Joe has a constant returns to scale production function.

(b) Joe has a cost function that exhibits increasing returns.

(c) Joe is not minimizing costs.

(d) Joe's behavior is consistent with profit maximization.

(e) Joe's production function exhibits diminishing marginal product.

Topic: Cost Minimization   Difficulty: 3
% Correct Responses: 41   Discrimination Index: 51
Correct Answer: D

20.15   The production function for drangles is: $f(x_1, x_2) = (min\{x_1, 3x_2\})^{1/2}$ where x_1 is the amount of sugar and x_2 is the amount of dough used. At the factor prices, $w_1 = w_2 = 1$, the minimum cost of producing y drangles is:

(a) $4y^{1/2}$.

(b) $(3/4)y^{1/2}$.

(c) $(3/4)y^2$.

(d) $(4/3)y^2$.

(e) None of the above.

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 69   Discrimination Index: 49
Correct Answer: B

20.16   An orange grower has discovered a process for producing oranges that requires two inputs. The production function is $Q = min\{4x_1, x_2\}$ where x_1 and x_2 are the amounts of inputs 1 and 2 that he uses. The prices of these two inputs are $w_1 = \$4$ and $w_2 = \$2$, respectively. The minimum cost of producing 280 units is therefore:

(a) \$1,680.

(b) \$840.

(c) \$2,240.

(d) \$560.

(e) \$1,120.

Topic: Cost Minimization
% Correct Responses: 69
Correct Answer: B

Difficulty: 1
Discrimination Index: 49

20.17 An orange grower has discovered a process for producing oranges that requires two inputs. The production function is $Q = min\{2x_1, x_2\}$ where x_1 and x_2 are the amounts of inputs 1 and 2 that he uses. The prices of these two inputs are $w_1 = \$2$ and $w_2 = \$4$, respectively. The minimum cost of producing 80 units is therefore:

(a) $480.

(b) $400.

(c) $640.

(d) $160.

(e) $320.

Topic: Cost Minimization
% Correct Responses: 51
Correct Answer: B

Difficulty: 2
Discrimination Index: 41

20.18 Roberta runs a dress factory. She produces 50 dresses per day, using labor and electricity. She uses a combination of labor and electricity that produces 50 dresses per day in the cheapest possible way. She can hire as much labor as she wants at a cost of 20 cents per minute. She can use as much electricity as she wants at a cost of 10 cents per minute. Her production isoquants are smooth curves without kinks and she uses positive amounts of both inputs.

(a) The marginal product of a kilowatt-hour of electricity is twice the marginal product of a minute of labor.

(b) The marginal product of a minute of labor is twice the marginal product of a kilowatt-hour of electricity.

(c) The marginal product of a minute of labor is equal to the marginal product of a kilowatt-hour of electricity.

(d) There is not enough information to determine the ratio of marginal products. We'd have to know the production function to know this.

(e) The marginal product of a minute of labor plus the marginal product of a kilowatt-hour of labor must equal $50/(20 + 10)$.

CHAPTER 20 Cost Minimization

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 27   Discrimination Index: 46
Correct Answer: D

20.19   A competitive firm has the three-factor production function $f(x, y, z) = (x + y)^{1/2} z^{1/2}$. The factor prices used to be $w_x = 1$, $w_y = 2$, and $w_z = 3$. Suppose that the price of factor y doubled while the other two prices stayed the same. Then the cost of production:

(a) increased by more than 10% but less than 50%.

(b) increased by 50%.

(c) doubled.

(d) stayed the same.

(e) increased by more than 50%, but did not double.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.20   A competitive firm uses three factors of production. Its production function is $f(x, y, z) = (x + y)^{1/2} z^{1/2}$. Originally the factor prices were $w_x = 1$, $w_y = 2$, and $w_z = 3$. The prices of factors x and z decreased to half of their previous levels, but the price of factor y stayed constant. The cost of production:

(a) decreased by more than half.

(b) decreased by one third.

(c) decreased by exactly one half.

(d) stayed constant.

(e) decreased by less than one third.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.21   A competitive firm with output y has a production function, $y = (2x_1 + x_2)^{1/2}$ where x_1 and x_2 are inputs used in production. The firm produces output minimizing cost. With input prices w_1 and w_2, which of the following is true?

(a) The firm has L shaped isoquants.

(b) The firm must use the cheaper input.

(c) The firm must use only input x_1 if $w_1 < 2w_2$.

(d) The technology has increasing returns to scale.

(e) More than one of the above is true.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 39   Discrimination Index: 32
Correct Answer: D

20.22   Suppose that the production function is $f(x_1, x_2) = (min\{x_1, 2x_2\})^{.5}$. Then:

(a) there are constant returns to scale.

(b) the cost function is a min function.

(c) if the price of x_1 is more than twice the price of x_2, only x_2 is used in production.

(d) a cost minimizing firm producing 5 units of output will use 25 units of x_1 and some x_2.

(e) the cost function is a linear function of output.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 30   Discrimination Index: 55
Correct Answer: B

20.23   If the production function is given by $f(x_1, x_2, x_3, x_4) = min\{x_1, x_2\} + min\{x_3, x_4\}$ and the prices of inputs (x_1, x_2, x_3, x_4) are $(2, 1, 5, 3)$, the minimum cost of producing one unit of output is closest to:

(a) 1.

(b) 3.

(c) 4.

(d) 8.

(e) 11.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 21
Correct Answer: A

20.24   Two firms, Wickedly Efficient Widgets and Wildy Nepotistic Widgets both produce widgets, using the same production function $y = K^{1/2}L^{1/2}$ where K is the amount of labor used and L is the amount of capital used. Each company can hire labor at \$1 per unit of labor and capital at \$9 per unit. Each company produces 90 per week. WEW chooses its input combinations to produce in the cheapest way possible. Although it produces the same output per week as WEW, WNW is required by its dotty CEO to use twice as much labor as WEW. How much higher are WNW's total costs per week than WEW's?

(a) \$135

(b) \$270

(c) \$275

(d) \$67.50

(e) \$132

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 21
Correct Answer: A

20.25   Two firms, Wickedly Efficient Widgets and Wildy Nepotistic Widgets both produce widgets, using the same production function $y = K^{1/2}L^{1/2}$ where K is the amount of labor used and L is the amount of capital used. Each company can hire labor at \$1 per unit of labor and capital at \$4 per unit. Each company produces 40 per week. WEW chooses its input combinations to produce in the cheapest way possible. Although it produces the same output per week as WEW, WNW is required by its dotty CEO to use twice as much labor as WEW. How much higher are WNW's total costs per week than WEW's?

(a) \$40

(b) \$80

(c) \$85

(d) \$20

(e) \$37

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 89   Discrimination Index: 15
Correct Answer: C

20.26   A new metal alloy is discovered that uses copper and zinc in fixed proportions where each unit of the alloy requires 5 units of zinc and 5 units of copper. If no other inputs are required, if the price of zinc is 3 per unit, and the price of copper is 4 per unit and if total output is 2,000 units, what is the average cost per unit of output?

(a) 0.60

(b) 2.40

(c) 35

(d) 38

(e) 42

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 89

Discrimination Index: 15

Correct Answer: C

20.27 A new metal alloy is discovered that uses copper and zinc in fixed proportions where each unit of the alloy requires 2 units of zinc and 5 units of copper. If no other inputs are required, if the price of zinc is 2 per unit, and the price of copper is 5 per unit and if total output is 2,000 units, what is the average cost per unit of output?

(a) 1

(b) 4

(c) 29

(d) 31

(e) 36

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 78

Discrimination Index: 21

Correct Answer: A

20.28 The production function is $f(L, M) = 2L^{1/2}M^{1/2}$ where L is the number of units of labor and M is the number of machines. If the amounts of both factors can be varied, and if the cost of labor is \$16 per unit and the cost of using machines is \$49 per machine, then the total cost of producing 12 units of output is:

(a) 336.

(b) 390.

(c) 192.

(d) 672.

(e) 168.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 78   Discrimination Index: 21
Correct Answer: A

20.29   The production function is $f(L, M) = 4L^{1/2}M^{1/2}$ where L is the number of units of labor and M is the number of machines. If the amounts of both factors can be varied, and if the cost of labor is \$25 per unit and the cost of using machines is \$16 per machine, then the total cost of producing 16 units of output is:

(a) 160.

(b) 328.

(c) 256.

(d) 640.

(e) 80.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 22   Discrimination Index: 27
Correct Answer: D

20.30   Douffelberry juice is a mild intoxicant, prized for facilitating conversation among university administrators, but not otherwise valued. The berry does not travel well, so it must be squeezed on the farm where it is grown. Baskets of berries are produced using ounces of seeds, S, and hours labor, L, according to a production function $B = S^{1/2}L^{1/2}$. Gallons of Juice, J, are made from baskets of berries and hours of labor according to the production function $J = min\{B, L\}$. If seeds cost 9 per ounce and labor costs 1 per hour, what is the cost of producing each gallon of douffelberry juice?

(a) 14

(b) 6

(c) 3

(d) 7

(e) Since there are not constant returns to scale, the cost per gallon depends on the number of gallons produced.

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 22

Discrimination Index: 27

Correct Answer: D

20.31 Douffelberry juice is a mild intoxicant, prized for facilitating conversation among university administrators, but not otherwise valued. The berry does not travel well, so it must be squeezed on the farm where it is grown. Baskets of berries are produced using ounces of seeds, S, and hours labor, L, according to a production function $B = S^{1/2}L^{1/2}$. Gallons of Juice, J, are made from baskets of berries and hours of labor according to the production function $J = min\{B, L\}$. If seeds cost 4 per ounce and labor costs 4 per hour, what is the cost of producing each gallon of douffelberry juice?

(a) 24

(b) 8

(c) 4

(d) 12

(e) Since there are not constant returns to scale, the cost per gallon depends on the number of gallons produced.

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

20.32 Nadine has a production function $4x_1 + x_2$. If the factor prices are 12 for factor 1 and 2 for factor 2, how much will it cost her to produce 60 units of output?

(a) 3,000

(b) 120

(c) 180

(d) 1,590

(e) 150

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

20.33   Nadine has a production function $3x_1 + x_2$. If the factor prices are 3 for factor 1 and 5 for factor 2, how much will it cost her to produce 20 units of output?

(a) 280

(b) 20

(c) 100

(d) 190

(e) 60

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 76   Discrimination Index: 60
Correct Answer: A

20.34   The production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$36 per unit and the cost of machines is \$64 per unit, then the total cost of producing 6 units of output will be:

(a) 144.

(b) 300.

(c) 216.

(d) 288.

(e) None of the above.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 76   Discrimination Index: 60
Correct Answer: A

20.35   The production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$25 per unit and the cost of machines is \$64 per unit, then the total cost of producing 6 units of output will be:

(a) 120.

(b) 267.

(c) 150.

(d) 240.

(e) None of the above.

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 82

Discrimination Index: 40

Correct Answer: E

20.36   In the short run, a firm which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 25 machines. If the cost of labor is 10 per unit and the cost of machines is 4 per unit, the short run total cost of producing 100 units of output is:

(a) 700.

(b) 400.

(c) 1,000.

(d) 700.

(e) 350.

Topic: Cost Minimization

Difficulty: 2

% Correct Responses: 82

Discrimination Index: 40

Correct Answer: E

20.37   In the short run, a firm which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 9 machines. If the cost of labor is 11 per unit and the cost of machines is 5 per unit, the short run total cost of producing 132 units of output is:

(a) 1,056.

(b) 660.

(c) 1,452.

(d) 2,752.

(e) 1,376.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.38

Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$8 per unit and the cost of wood is \$2 per unit, then the cost of producing 6 deer is:

(a) 72.

(b) 108.

(c) 144.

(d) 12.

(e) 24.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.39

Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$10 per unit and the cost of wood is \$2 per unit, then the cost of producing 9 deer is:

(a) 162.

(b) 198.

(c) 405.

(d) 18.

(e) 45.

Topic: Cost Minimization
% Correct Responses: 55
Correct Answer: D

Difficulty: 0
Discrimination Index: 39

20.40 A firm has production function $f(x_1, x_2, x_3, x_4) = min\{x_1, x_2\} + min\{x_3, x_4\}$. This firm faces competitive factor markets where the prices for the four factors are $w_1 = 3$, $w_2 = 8$, $w_3 = 3$ and $w_4 = 7$. The firm must use at least 20 units of factor 2. The cost of producing 100 units in the cheapest possible way is:

(a) 1,500

(b) 600

(c) 1,180

(d) 1,020

(e) 300

Topic: Cost Minimization
% Correct Responses: 55
Correct Answer: D

Difficulty: 0
Discrimination Index: 39

20.41 A firm has production function $f(x_1, x_2, x_3, x_4) = min\{x_1, x_2\} + min\{x_3, x_4\}$. This firm faces competitive factor markets where the prices for the four factors are $w_1 = 6$, $w_2 = 8$, $w_3 = 6$ and $w_4 = 3$. The firm must use at least 20 units of factor 2. The cost of producing 100 units in the cheapest possible way is:

(a) 1,400

(b) 900

(c) 1,160

(d) 1,000

(e) 300

20.42   The law firm of Dewey, Cheatham, and Howe specializes in accident injury claims. The firm charges its clients 25% of any damage award given. The only cost to the firm of producing an accident injury claim is the time spent by a junior partner working on the case. Junior partners are paid $100 per hour for this drudgery. If the firm is suing for damages of $250,000 and if its chances of winning a case are $1 - (1/25h)$, where h is the number of hours spent working on the case, then to maximize its profits, how many hours should it spend working on the case?

(a) 15

(b) 25

(c) 5

(d) 7.50

(e) None of the above.

20.43   The law firm of Dewey, Cheatham, and Howe specializes in accident injury claims. The firm charges its clients 25% of any damage award given. The only cost to the firm of producing an accident injury claim is the time spent by a junior partner working on the case. Junior partners are paid $100 per hour for this drudgery. If the firm is suing for damages of $490,000 and if its chances of winning a case are $1 - (1/25h)$, where h is the number of hours spent working on the case, then to maximize its profits, how many hours should it spend working on the case?

(a) 21

(b) 35

(c) 7

(d) 10.50

(e) None of the above.

Topic: Cost Minimization

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

20.44   A firm with the production function $f(x_1, x_2, x_3, x_4) = min\{x_1, x_2, x_3, x_4\}$ faces input prices $w_1 = 1$, $w_2 = 5$, $w_3 = 5$, $w_4 = 4$ for factors 1,2,3 and 4. The firm must use at least 10 units of factor 2. The lowest cost at which it can produce 100 units of output is:

(a) 900.

(b) 540

(c) 1,500

(d) 860

(e) 500

Topic: Cost Minimization

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

20.45   A firm with the production function $f(x_1, x_2, x_3, x_4) = min\{x_1, x_2, x_3, x_4\}$ faces input prices $w_1 = 5$, $w_2 = 6$, $w_3 = 4$, $w_4 = 2$ for factors 1,2,3 and 4. The firm must use at least 15 units of factor 2. The lowest cost at which it can produce 100 units of output is:

(a) 800.

(b) 715

(c) 1,700

(d) 600

(e) 700

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

20.46   If output is produced according to $Q = 4L + 6K$, the price of K is \$12, and the price of L is \$4, then the cost minimizing combination of K and L capable of producing 72 units of output is

(a) $L = 9$ and $K = 6$.

(b) $L = 4$ and $K = 12$.

(c) $L = 18$ and $K = 12$.

(d) $L = 0$ and $K = 12$.

(e) $L = 18$ and $K = 0$.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

20.47   If output is produced according to $Q = 4L + 6K$, the price of K is \$12, and the price of L is \$12, then the cost minimizing combination of K and L capable of producing 24 units of output is

(a) $L = 3$ and $K = 2$.

(b) $L = 12$ and $K = 12$.

(c) $L = 6$ and $K = 4$.

(d) $L = 0$ and $K = 4$.

(e) $L = 6$ and $K = 0$.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

20.48   If output is produced according to $Q = 4LK$, the price of K is \$10, and the price of L is \$10, then the cost minimizing combination of K and L capable of producing 16 units of output is

(a) $L = 4$ and $K = 1$.

(b) $L = 2$ and $K = 2$.

(c) $L = 1$ and $K = 1$.

(d) $L = 8$ and $K = 8$.

(e) $L = 1$ and $K = 4$.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

20.49   If output is produced according to $Q = 4LK$, the price of K is \$10, and the price of L is \$40, then the cost minimizing combination of K and L capable of producing 64 units of output is

(a) $L = 16$ and $K = 1$.

(b) $L = 2$ and $K = 8$.

(c) $L = 2$ and $K = 2$.

(d) $L = 32$ and $K = 32$.

(e) $L = 1$ and $K = 16$.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.50   If it costs $30 to set up and later clean a bagel press and bagels cost $1 per week, per bagel, to store, how many times should the bagel press be run each week to produce 540 bagels a week to be sold continuously?

(a) Once.

(b) Twice.

(c) 3 times.

(d) 4 times.

(e) 5 times.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.51   If it costs $10 to set up and later clean a bagel press and bagels cost $1 per week, per bagel, to store, how many times should the bagel press be run each week to produce 500 bagels a week to be sold continuously?

(a) Once.

(b) Twice.

(c) 3 times.

(d) 4 times.

(e) 5 times.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.52   A politician facing re-election can win votes according to the following process:
$V = 500S^{0.30}M^{0.50}$
where S is hours of making campaign speeches, and M is the number of flyers mailed. If making speeches costs $10 per hour, mailing flyers costs $0.50 per flyer, and $8,000 are available to spend on the campaign. Assuming the politician wants to maximize votes, how should the budget be allocated between speeches and mailing flyers?

(a) No speeches should be given, 16,000 flyers should be mailed.

(b) 400 hours of speeches should be given, 8,000 flyers should be mailed out.

(c) 300 hours of speeches should be given, 10,000 flyers should be mailed out.

(d) 3,000 hours of speeches should be given, 5,000 flyers should be mailed out.

(e) 800 hours speeches should be given, no flyers should be mailed out.

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

20.53   A politician facing re-election can win votes according to the following process:

$V = 500S^{0.30}M^{0.60}$

where S is hours of making campaign speeches, and M is the number of flyers mailed. If making speeches costs \$10 per hour, mailing flyers costs \$0.50 per flyer, and \$3,000 are available to spend on the campaign. Assuming the politician wants to maximize votes, how should the budget be allocated between speeches and mailing flyers?

(a) No speeches should be given, 6,000 flyers should be mailed.

(b) 150 hours of speeches should be given, 3,000 flyers should be mailed out.

(c) 100 hours of speeches should be given, 4,000 flyers should be mailed out.

(d) 1,000 hours of speeches should be given, 2,000 flyers should be mailed out.

(e) 300 hours speeches should be given, no flyers should be mailed out.

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

20.54   The Chrysler Belvedere Truck Plant is attempting to minimize production costs. Over one month, 3,200 fenders are needed on the production line, which runs continuously. If it costs \$100 to set up the stamping press to produce fenders, and \$1 per month to store produced fenders, how many times should the stamping press be run per month?

(a) Once.

(b) Twice.

(c) Three times.

(d) Four times.

(e) Five times.

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

20.55 The Chrysler Belvedere Truck Plant is attempting to minimize production costs. Over one month, 1,600 fenders are needed on the production line, which runs continuously. If it costs $200 to set up the stamping press to produce fenders, and $1 per month to store produced fenders, how many times should the stamping press be run per month?

(a) Once.

(b) Twice.

(c) Three times.

(d) Four times.

(e) Five times.

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

20.56 A lobbyist in our nation's capitol must buy 250 votes in the House of Representatives and Senate to win passage of a bill to add Millard Fillmore's face to Mount Rushmore. Votes in Congress can be purchased according to the following process:

$V = CM/100{,}000$

where C is the number of dollars contributed to campaign funds, and M is the number of three-martini lunches. If three-martini lunches cost $64 each, what is the smallest expenditure the lobbyist could make to insure Mr. Fillmore's proper place in history?

(a) $80,000

(b) $390,625

(c) $25,000,064

(d) $325,000

(e) $25,000,000

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.57   A lobbyist in our nation's capitol must buy 250 votes in the House of Representatives and Senate to win passage of a bill to add Millard Fillmore's face to Mount Rushmore. Votes in Congress can be purchased according to the following process:
$V = CM/100,000$
where C is the number of dollars contributed to campaign funds, and M is the number of three-martini lunches. If three-martini lunches cost \$16 each, what is the smallest expenditure the lobbyist could make to insure Mr. Fillmore's proper place in history?

(a) \$40,000

(b) \$1,562,500

(c) \$25,000,016

(d) \$85,000

(e) \$25,000,000

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

20.58

The editors at Snoozeweek, a news magazine, constantly alter the proportion of celebrity photographs and mundane news stories so as to maximize the number of copies sold. A statistical consultant has estimated sales to be $S = 1,000C^{0.50}N^{0.50}$ (where C is the number of celebrity photographs and N is column inches of news stories). If the editors only have \$12,000 to spend on each edition with celebrity photos costing \$1,000 each and news stories costing \$10 per column inch, what should the editors do?

(a) Purchase 8 celebrity photos and 400 column inches of news stories.

(b) Purchase 6 celebrity photos and 600 column inches of news stories.

(c) Purchase 2 celebrity photos and 1,000 column inches of news stories.

(d) Purchase 4 celebrity photos and 800 column inches of news stories.

(e) Purchase 10 celebrity photos and 200 column inches of news stories.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

20.59

The editors at Snoozeweek, a news magazine, constantly alter the proportion of celebrity photographs and mundane news stories so as to maximize the number of copies sold. A statistical consultant has estimated sales to be $S = 1,000C^{0.50}N^{0.50}$ (where C is the number of celebrity photographs and N is column inches of news stories). If the editors only have $12,000 to spend on each edition with celebrity photos costing $1,000 each and news stories costing $10 per column inch, what should the editors do?

(a) Purchase 8 celebrity photos and 400 column inches of news stories.

(b) Purchase 6 celebrity photos and 600 column inches of news stories.

(c) Purchase 2 celebrity photos and 1,000 column inches of news stories.

(d) Purchase 3 celebrity photos and 900 column inches of news stories.

(e) Purchase 5 celebrity photos and 700 column inches of news stories.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

20.60   Vincent Smudge, an avant-guard New York artist, creates "living sculpture" by smearing paint slowly all over himself. S hours of "living sculpture" can be created by
$S = min(L, T/5)$
where L are hours of labor by Mr. Smudge, and T are tubes of water soluble paint. Since Mr. Smudge is a highly renowned artist, his labor costs $50 per hour, while paint costs $40 per tube. Using a $3,000 grant from the National Endowment for the Arts, how many hours of "living sculpture" can Mr. Smudge create?

(a) 33.33

(b) 51.72

(c) 12

(d) 500

(e) 2,500

20.61   Vincent Smudge, an avant-guard New York artist, creates "living sculpture" by smearing paint slowly all over himself. S hours of "living sculpture" can be created by
$S = min(L, T/4)$
where L are hours of labor by Mr. Smudge, and T are tubes of water soluble paint. Since Mr. Smudge is a highly renowned artist, his labor costs \$200 per hour, while paint costs \$30 per tube. Using a \$2,000 grant from the National Endowment for the Arts, how many hours of "living sculpture" can Mr. Smudge create?

(a) 8.70

(b) 9.64

(c) 6.25

(d) 400

(e) 1,600

20.62   Using existing plant and equipment, Priceless Moments Figurines can be manufactured using plastic, clay, or any combination of these materials. A figurine can be manufactured by
$F = 3P + 2C$
where P are pounds of plastic, and C are pounds of clay. Plastic costs \$4 per pound and clay costs \$3 per pound. What would be the lowest cost of producing 10,000 figurines?

(a) \$13,333.33

(b) \$15,000

(c) \$14,166.67

(d) \$3,333.33

(e) \$10,000

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

20.63   Using existing plant and equipment, Priceless Moments Figurines can be manufactured using plastic, clay, or any combination of these materials. A figurine can be manufactured by
$F = 3P + 2C$
where P are pounds of plastic, and C are pounds of clay. Plastic costs \$2 per pound and clay costs \$4 per pound. What would be the lowest cost of producing 10,000 figurines?

(a) \$6,666.67

(b) \$20,000

(c) \$13,333.33

(d) \$3,333.33

(e) \$10,000

Topic: Cost Minimization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

20.64   Rocco's Pasta Bar makes manacotti according to an old family recipe where
$M = min(5/4 * C, 5P)$
M, C, and P are pounds of manicotti, cheese, and pasta respectively. If cheese costs \$2 per pound, and pasta costs \$5 per pound, how much would it cost to produce 30 pounds of manicotti in the cheapest way possible?

(a) 30.

(b) 48.

(c) 78

(d) 48.75

(e) 30

20.65   Rocco's Pasta Bar makes manacotti according to an old family recipe where
$M = min(3/2 * C, 3P)$
M, C, and P are pounds of manicotti, cheese, and pasta respectively. If cheese costs \$5 per pound, and pasta costs \$2 per pound, how much would it cost to produce 30 pounds of manicotti in the cheapest way possible?

(a) 20.

(b) 100.

(c) 120

(d) 54

(e) 30

Topic: Cost Minimization   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

20.1   A firm has a production function described as follows: "Weekly output is equal to the square root of the minimum of the amount of capital and the number of hours of labor used per week." Suppose that the cost of a unit of capital is r and the price of a unit of labor is w and the level of output is y. Write down the long run total cost as a function of w, r, and y.

Answer: $c(w, r, y) = (w + r)y^2$.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

20.2   The production function for good y is $y = max\{10x_1, 4x_2\}$ where x_1 and x_2 are the amounts of factors 1 and 2. Find the cost function for good y.

Answer: The cost function is $min\{p1y/10, p2y/4\}$.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

20.3   If the production function for tuna casseroles is $min\{x_1, x_2^2\}$, where x_1 is the amount of factor 1 and x_2 is the amount of factor x_2, find the cost function for tuna casseroles.

Answer: $c(w_1, w_2) = p_1 x + p_2 y^{1/2}$.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

20.4   The cost function, $c(w1, w2, y)$, of a firm, gives the cost of producing y units of output when the wage of factor 1 is w1 and the wage of factor 2 is w2. Find the cost functions for the following firms: a) a firm with production function $f(x1, x2) = min\{2x1, 3x2\}$, b) a firm with production function $f(x1, x2) = 2x1 + 3x2$, and c) a firm with production function $f(x1, x2) = max\{2x1, 3x2\}$.

Answer: $a)w1/2 + w2/3$ $b)min\{w1/2, w2/3\}$ $c)min\{w1/2, w2/3\}$

Chapter 21

True-False   Cost Curves

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

21.1   The average variable cost curve must always be U shaped.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 34
Correct Answer: False

21.2   The marginal cost curve passes through the minimum point of the average fixed cost curve.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 26
Correct Answer: True

21.3   If the average cost curve is U shaped, then the marginal cost curve must cross the average cost curve at the bottom of the U.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 25
Correct Answer: True

21.4   The cost function $C(y) = 10 + 3y$ has marginal cost less than average cost for all levels of output.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 92   Discrimination Index: 10
Correct Answer: False

21.5   The cost function $C(y) = 100 + 3y^2$ has marginal cost less than average cost for all positive levels of output.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 78   Discrimination Index: 28
Correct Answer: False

21.6   If a competitive firm uses two inputs and it has the production function $F(x_1, x_2) = x_1^{1/2} + x_2^{1/2}$, then its marginal cost curve is horizontal.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 13   Discrimination Index: 20
Correct Answer: False

21.7   Average cost can never rise while marginal costs are declining.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 21
Correct Answer: False

21.8   The area under the marginal cost curve measures total fixed costs.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 23
Correct Answer: False

21.9   If marginal costs increase as output increases, then the average fixed cost curve will be U-shaped.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 27
Correct Answer: False

21.10   Average fixed cost curves will be U-shaped if the marginal cost curve is upward-sloping.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 13

Correct Answer: B

21.1 The marginal cost curve of a firm is $MC = 8y$. Total variable costs to produce 7 units of output are:

(a) 112.

(b) 196.

(c) 56.

(d) 196.

(e) 22.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 13

Correct Answer: B

21.2 The marginal cost curve of a firm is $MC = 6y$. Total variable costs to produce 8 units of output are:

(a) 96.

(b) 192.

(c) 64.

(d) 256.

(e) 22.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 75

Discrimination Index: 18

Correct Answer: D

21.3 The following relationship must hold between the average total cost (ATC) curve and the marginal cost curve (MC):

(a) if MC is rising, ATC must be rising.

(b) if MC is rising, ATC must be greater than MC.

(c) if MC is rising, ATC must be less than MC.

(d) if ATC is rising, MC must be greater than ATC.

(e) if ATC is rising, MC must be less than ATC.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 20

Correct Answer: C

21.4 A goatherd has the cost function $c(y) = 5y^2$ where y is the number of tubs of goat cheese she makes per month. She faces a competitive market for goat cheese, with a price of \$100 a tub. How many tubs should she produce per month?

(a) the square root of 100

(b) 25

(c) 10

(d) the square root of 20

(e) 5

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 94

Discrimination Index: 20

Correct Answer: C

21.5 A goatherd has the cost function $c(y) = 3y^2$ where y is the number of tubs of goat cheese she makes per month. She faces a competitive market for goat cheese, with a price of \$42 a tub. How many tubs should she produce per month?

(a) the square root of 42

(b) 9

(c) 7

(d) the square root of 14

(e) 3.50

Topic: Cost Curves

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 17

Correct Answer: C

21.6 A firm has a short run cost function $c(y) = 3y + 11$ for $y > 0$ and $c(0) = 7$. The firm's quasi-fixed costs are:

(a) 7.

(b) 11.

(c) 4.

(d) 7.50.

(e) impossible to determine from this information.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 72   Discrimination Index: 17
Correct Answer: C

21.7   A firm has a short run cost function $c(y) = 3y + 16$ for $y > 0$ and $c(0) = 6$. The firm's quasi-fixed costs are:

(a) 6.

(b) 16.

(c) 10.

(d) 13.

(e) impossible to determine from this information.

Topic: Cost Curves   Difficulty: 3
% Correct Responses: 70   Discrimination Index: 37
Correct Answer: C

21.8   A competitive firm has the short run cost function $c(y) = 3y^3 - 36y^2 + 128y + 35$. The firm will produce a positive amount in the short run if and only if the price is greater than:

(a) 10.

(b) 40.

(c) 20.

(d) 23.

(e) 19.

Topic: Cost Curves   Difficulty: 3
% Correct Responses: 70   Discrimination Index: 37
Correct Answer: C

21.9   A competitive firm has the short run cost function $c(y) = 2y^3 - 16y^2 + 96y + 50$. The firm will produce a positive amount in the short run if and only if the price is greater than:

(a) 32.

(b) 128.

(c) 64.

(d) 67.

(e) 63.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.10   The production function of a competitive firm is described by the equation $y = 5x_1^{1/2}x_2^{1/2}$. The factor prices are $p_1 = 1$ and $p_2 = 4$ and the firm can hire as much of either factor it wants at these prices. The firm's marginal cost is:

(a) constant and equal to 0.80.

(b) constant and equal to 3.

(c) increasing.

(d) decreasing.

(e) none of the above.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.11   The production function of a competitive firm is described by the equation $y = 6x_1^{1/2}x_2^{1/2}$. The factor prices are $p_1 = 1$ and $p_2 = 4$ and the firm can hire as much of either factor it wants at these prices. The firm's marginal cost is:

(a) constant and equal to 0.67.

(b) constant and equal to 3.

(c) increasing.

(d) decreasing.

(e) none of the above.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 90   Discrimination Index: 18
Correct Answer: A

21.12   A firm has the short run total cost function $c(y) = 9y^2 + 441$. At what quantity of output is short run average cost minimized?

(a) 7

(b) 3

(c) 49

(d) 0.43

(e) None of the above.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 90   Discrimination Index: 18
Correct Answer: A

21.13   A firm has the short run total cost function $c(y) = 4y^2 + 100$. At what quantity of output is short run average cost minimized?

(a) 5

(b) 2

(c) 25

(d) 0.40

(e) None of the above.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 31   Discrimination Index: 40
Correct Answer: A

21.14   A firm has the production function $Q = X_1^{1/2} X_2$. In the short run it must use exactly 20 units of factor 2. The price of factor 1 is \$60 per unit and the price of factor 2 is \$2 per unit. The firm's short run marginal cost function is:

(a) $MC(Q) = 6Q/20$.

(b) $MC(Q) = 40Q^{-1/2}$.

(c) $MC(Q) = 40 + 60Q^2$.

(d) $MC(Q) = 2Q$.

(e) $MC(Q) = 20Q^{-1/2}$.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 31   Discrimination Index: 40
Correct Answer: A

21.15   A firm has the production function $Q = X_1^{1/2} X_2$. In the short run it must use exactly 10 units of factor 2. The price of factor 1 is \$40 per unit and the price of factor 2 is \$6 per unit. The firm's short run marginal cost function is:

(a) $MC(Q) = 8Q/10$.

(b) $MC(Q) = 60Q^{-1/2}$.

(c) $MC(Q) = 60 + 40Q^2$.

(d) $MC(Q) = 6Q$.

(e) $MC(Q) = 10Q^{-1/2}$.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 82

Discrimination Index: 36

Correct Answer: A

21.16   Mr. Dent Carr's total costs are $2s^2 + 75s + 100$. If he repairs 25 cars, his average variable costs will be:

(a) 125.

(b) 129.

(c) 175.

(d) 250.

(e) 87.50.

Topic: Cost Curves

Difficulty: 1

% Correct Responses: 82

Discrimination Index: 36

Correct Answer: A

21.17   Mr. Dent Carr's total costs are $4s^2 + 100s + 60$. If he repairs 20 cars, his average variable costs will be:

(a) 180.

(b) 183.

(c) 260.

(d) 360.

(e) 130.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.18   Rex Carr could pay $10 for a shovel that lasts one year and pay $5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs $200 a year to own and that smashes cars at a marginal cost of $1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost $350 per year to own and if with this smasher he could dispose of cars at a cost of $0.67 per car, it would be worthwhile for him to buy this high-quality smasher if

(a) he plans to dispose of at least 450 cars per year.

(b) he plans to dispose of no more than 225 cars per year.

(c) he plans to dispose of at least 460 cars per year.

(d) he plans to dispose of no more than 450 cars per year.

(e) he plans to dispose of at least 225 cars per year.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.19 Rex Carr could pay $10 for a shovel that lasts one year and pay $5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs $200 a year to own and that smashes cars at a marginal cost of $1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost $450 per year to own and if with this smasher he could dispose of cars at a cost of $0.67 per car, it would be worthwhile for him to buy this high-quality smasher if

(a) he plans to dispose of at least 750 cars per year.

(b) he plans to dispose of no more than 375 cars per year.

(c) he plans to dispose of at least 760 cars per year.

(d) he plans to dispose of no more than 750 cars per year.

(e) he plans to dispose of at least 375 cars per year.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 41

Correct Answer: C

21.20 Mary Magnolia from your workbook has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 1,200 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is $ 4 per unit, how many bouquets per month should she sell in the short run?

(a) 1,200

(b) 600

(c) 2,400

(d) 3,600

(e) 2,640

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 41

Correct Answer: C

21.21   Mary Magnolia from your workbook has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 800 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is $ 5 per unit, how many bouquets per month should she sell in the short run?

(a) 800

(b) 400

(c) 2,000

(d) 3,000

(e) 2,200

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.22   Touchie McFeelie from your workbook has a production function $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor.
Touchie is stuck with 900 old jokes for which he paid 4 dollars each. If the hourly wage rate for cartoonists is 3, then the total cost of producing 24 comics books is:

(a) 3,648.

(b) 1,824.

(c) 5,472.

(d) 3,672.

(e) 912.

21.23   Touchie McFeelie from your workbook has a production function $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor.
Touchie is stuck with 1,600 old jokes for which he paid 3 dollars each. If the hourly wage rate for cartoonists is 4, then the total cost of producing 108 comics books is:

(a) 5,124.

(b) 2,562.

(c) 7,686.

(d) 5,232.

(e) 1,281.

21.24   Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$, where J is the number of jokes and L is the number of hours of cartoonists labor that he uses. If Touchie can vary both jokes and cartoonists' labor and if old jokes cost \$ 4 each and cartoonists' labor costs \$36 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 9.

(b) 12.

(c) 3.

(d) 2/3.

(e) 6.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

21.25   Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$, where J is the number of jokes and L is the number of hours of cartoonists labor that he uses. If Touchie can vary both jokes and cartoonists' labor and if old jokes cost \$ 1 each and cartoonists' labor costs \$6 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 6.

(b) 8.

(c) 2.

(d) 2/3.

(e) 4.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.26   A firm's production function is given by $q = min\{M, L^{1/2}\}$, where M is the number of machines and L is the amount of labor that it uses. The price of labor is 2 and the price of machines is 3 per unit. The firm's long run marginal cost curve is:

(a) a straight line with slope 4.

(b) upward-sloping and gets flatter as Q increases.

(c) upward-sloping and gets steeper as Q increases.

(d) a straight line with slope 2.

(e) a straight line with slope 3.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.27   A firm's production function is given by $q = min\{M, L^{1/2}\}$, where M is the number of machines and L is the amount of labor that it uses. The price of labor is 4 and the price of machines is 2 per unit. The firm's long run marginal cost curve is:

(a) a straight line with slope 8.

(b) upward-sloping and gets flatter as Q increases.

(c) upward-sloping and gets steeper as Q increases.

(d) a straight line with slope 4.

(e) a straight line with slope 2.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.28

In the reclining chair industry (which is perfectly competitive), two different technologies of production exist. These technologies exhibit the following total cost functions:
$C_1(Q) = 500 + 260Q - 20Q^2 + Q^3$
$C_2(Q) = 1,000 + 145Q - 10Q^2 + Q^3$
Due to foreign competition, the market price of reclining chairs has fallen to 110. In the short run,

(a) firms using technology 1 will remain in business and firms using technology 2 will remain in business.

(b) firms using technology 1 will remain in business and firms using technology 2 will shut down.

(c) firms using technology 1 will shut down and firms using technology 2 will remain in business.

(d) firms using technology 1 will shut down and firms using technology 2 will shut down.

(e) more information is needed to make a judgment.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.29

In the reclining chair industry (which is perfectly competitive), two different technologies of production exist. These technologies exhibit the following total cost functions:
$C_1(Q) = 1,500 + 600Q - 40Q^2 + Q^3$
$C_2(Q) = 200 + 205Q - 10Q^2 + Q^3$
Due to foreign competition, the market price of reclining chairs has fallen to 190. In the short run,

(a) firms using technology 1 will remain in business and firms using technology 2 will remain in business.

(b) firms using technology 1 will remain in business and firms using technology 2 will shut down.

(c) firms using technology 1 will shut down and firms using technology 2 will remain in business.

(d) firms using technology 1 will shut down and firms using technology 2 will shut down.

(e) more information is needed to make a judgment.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.30   A firm has the long run cost function $C(Q) = 7Q^2 + 252$. In the long run, it will supply a positive amount of output, so long as the price is greater than:

(a) 168

(b) 176

(c) 42

(d) 84

(e) 89

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.31   A firm has the long run cost function $C(Q) = 5Q^2 + 245$. In the long run, it will supply a positive amount of output, so long as the price is greater than:

(a) 140

(b) 148

(c) 35

(d) 70

(e) 75

21.32   The VCR manufacturing business is perfectly competitive. Suppose that currently, firms which manufacture VCR's utilize either technology 1 or technology 2, whose cost functions are given below:
$TC_1(Q) = 1,060 - 60Q + Q^2$
$TC_2(Q) = 220 - 20Q + Q^2$
In the long run, assuming no new manufacturing technologies, what will happen in this industry?

(a) Firms utilizing technology 1 will stay in business, and firms utilizing technology 2 will also stay in business.

(b) Firms utilizing technology 1 will stay in business, but firms utilizing technology 2 will shut down.

(c) Firms utilizing technology 1 will shut down, but firms utilizing technology 2 will stay in business.

(d) Firms utilizing technology 1 will shut down, and firms utilizing technology 2 will also shut down.

(e) None of the above.

21.33   The VCR manufacturing business is perfectly competitive. Suppose that currently, firms which manufacture VCR's utilize either technology 1 or technology 2, whose cost functions are given below:
$TC_1(Q) = 1,060 - 60Q + Q^2$
$TC_2(Q) = 560 - 40Q + Q^2$
In the long run, assuming no new manufacturing technologies, what will happen in this industry?

(a) Firms utilizing technology 1 will stay in business, and firms utilizing technology 2 will also stay in business.

(b) Firms utilizing technology 1 will stay in business, but firms utilizing technology 2 will shut down.

(c) Firms utilizing technology 1 will shut down, but firms utilizing technology 2 will stay in business.

(d) Firms utilizing technology 1 will shut down, and firms utilizing technology 2 will also shut down.

(e) None of the above.

Topic: Cost Curves

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

21.34 The snow removal business in East Iceicle, Minnesota is a competitive industry. All snow-plow operators have the cost function $C = Q^2 + 25$, where Q is the number of driveways cleared. Demand for snow removal in the town is given by $Q_d = 120 - P$. The long run equilibrium number of firms in this industry is

(a) 11

(b) 22

(c) 14

(d) 120

(e) 23

Topic: Cost Curves

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

21.35 The snow removal business in East Iceicle, Minnesota is a competitive industry. All snow-plow operators have the cost function $C = Q^2 + 16$, where Q is the number of driveways cleared. Demand for snow removal in the town is given by $Q_d = 120 - P$. The long run equilibrium number of firms in this industry is

(a) 14

(b) 28

(c) 22

(d) 120

(e) 29

Topic: Cost Curves

% Correct Responses: 0

Correct Answer: E

Difficulty: 0

Discrimination Index: 0

21.36 Florence's Restaurant estimates that its total cost of providing Q meals per month is given by $TC = 4,000 + 4Q$. If Florence charges \$10 per meal, what is its break-even level of output?

(a) 1,000 meals

(b) 400 meals

(c) 285.71 meals

(d) 1,333.33 meals

(e) 666.67 meals

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

21.37   Florence's Restaurant estimates that its total cost of providing Q meals per month is given by $TC = 5,000 + 3Q$. If Florence charges $10 per meal, what is its break-even level of output?

(a) 1,666.67 meals

(b) 500 meals

(c) 384.62 meals

(d) 1,428.57 meals

(e) 714.29 meals

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.38   If Green Acres Turf Farm's total cost of producing acres of sod is $TC = 3Q^2 + 20Q + 60$, the marginal cost of producing the 10th acre of sod is

(a) $60.

(b) $20.

(c) $50.

(d) $80.

(e) $110.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

21.39   If Green Acres Turf Farm's total cost of producing acres of sod is $TC = 3Q^2 + 5Q + 70$, the marginal cost of producing the 10th acre of sod is

(a) $70.

(b) $5.

(c) $35.

(d) $65.

(e) $95.

Topic: Cost Curves   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0

21.1   Not long ago, the Canadian edition of a famous textbook on principles of economics had a diagram depicting a U-shaped average fixed cost curve. This occasioned great mirth around the campfires of some economists in the Great White North and did much to shorten a long hard winter. Explain what is wrong with drawing a U-shaped average fixed cost curve.

Answer: Average fixed cost must decline monotonically with output and would asymptotically approach zero. Remember that average fixed cost is just a constant divided by output.

Topic: Cost Curves   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

21.2   Hildegard, an intelligent and charming Holstein cow, grazes in a very large, mostly barren pasture with a few lush patches of grass. When she finds a new grassy area, the amount of grass she gets from it is equal to the square root of the number of hours, h, that she spends grazing there. Finding a new patch of grass on which to graze takes her one hour. Since Hildegard does not have pockets, the currency in which her costs are measured is time. a) What is the total cost to Hildegard of finding a new plot of grass and getting y units of grass from it? b) Find an expression for her marginal costs and her average cost per patch of grass as a function of the amount of grass she gets from each patch. c) How much time would she spend in each plot if she wanted to maximize her food intake? (Hint: Minimize average costs per unit of grass eaten.)

Answer: a) $1 + y^2$ b) $2y$, $1/y + y$ c) 1 hour.

Topic: Cost Curves   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

21.3   A competitive firm has the short run cost function $c(y) = y^3 - 2y^2 + 5y + 6$. Write down equations for a) the firm's average variable cost function, b) the firm's marginal cost function. c) At what level of output is average variable cost minimized? d) Graph the short-run supply function for this firm, being careful to label the key points on the graph with the numbers specifying the exact prices and quantities at these points.

Answer: a) $y^2 - 2y + 5$ b) $3y^2 - 4y + 5$ c) $y = 1$ d) The AVC curve is U-shaped with its bottom at $y = 1$, $c = 2$. The marginal cost curve is also U-shaped. It bottoms out at $y = 2/3$ and crosses the AVC curve from below at $y = 1$.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

21.4   North American Manufacturing has the following production function $Q = min(0.25K, 0.5L)$ where K is units of capital, and L is hours of labor.
a) Without any warning, the price of capital doubles. What should North American do in response?
b) If North American were planning a new manufacturing plant, are there any advantages to a larger facility?

Chapter 22

Topic: Firm Supply   Difficulty: 2
% Correct Responses: 53   Discrimination Index: 32
Correct Answer: False

22.1   A firm in a competitive industry takes account of the fact that the demand curve it confronts has a significant negative slope.

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 73   Discrimination Index: 25
Correct Answer: True

22.2   In a perfectly competitive industry, the demand curve for the total output of the industry may be downward sloping.

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 81   Discrimination Index: 22
Correct Answer: False

22.3   Price equals marginal cost is a sufficient condition for profit maximization.

Topic: Firm Supply   Difficulty: 3
% Correct Responses: 21   Discrimination Index: 2
Correct Answer: True

22.4   A firm faces competitive markets both for its inputs and its outputs. If its long run supply curve is $q = 3p$, then it can not have constant returns to scale.

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 84   Discrimination Index: 20
Correct Answer: True

22.5   A firm with the cost function $c(y) = 20y^2 + 500$ has a U-shaped cost curve.

Topic: Firm Supply   Difficulty: 2
% Correct Responses: 44   Discrimination Index: 19
Correct Answer: False

22.6   Mr. $O.$ Carr has the cost function $c(y) = y^2 + 144$ if his output, y, is positive and $c(0) = 0$. If the price of output is 30, Mr. Carr's profit-maximizing output is zero.

Topic: Firm Supply

% Correct Responses: 44

Correct Answer: False

Difficulty: 2

Discrimination Index: 19

22.7 Mr. O. Carr has the cost function $c(y) = y^2 + 36$ if his output, y, is positive and $c(0) = 0$. If the price of output is 18, Mr. Carr's profit-maximizing output is zero.

Topic: Firm Supply

% Correct Responses: 25

Correct Answer: True

Difficulty: 2

Discrimination Index: 40

22.8 A firm produces one output, using one input, with the production function $f(x) = 2x^{1/3}$ where x is the amount of input. The cost function for this firm is proportional to the price of the input times the cube of the amount of output.

Topic: Firm Supply

% Correct Responses: 62

Correct Answer: True

Difficulty: 2

Discrimination Index: 15

22.9 A competitive firm has a continuous marginal cost curve. It finds that as output increases, its marginal cost curve first rises, then falls, then rises again. If it wants to maximize profits, the firm should never produce at a positive output where price equals marginal cost and marginal cost decreases as output increases.

Topic: Firm Supply

% Correct Responses: 78

Correct Answer: False

Difficulty: 2

Discrimination Index: 17

22.10 Two firms have the same technology and must pay the same wages for labor. They have identical factories, but Firm 1 paid a higher price for its factory than did Firm 2. If they are both profit maximizers and have upward sloping marginal cost curves, then we would expect Firm 1 to have a higher output than Firm 2.

Topic: Firm Supply

% Correct Responses: 55

Correct Answer: True

Difficulty: 2

Discrimination Index: 9

22.11 The area under the marginal cost curve measures total variable costs.

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 71   Discrimination Index: 0
Correct Answer: True

22.12   Average fixed costs never increase with output.

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

22.13   The change in producer's surplus when the market price changes from p_1 to p_2 is half of the area to the left of the marginal cost curve between p_1 and p_2.

Topic: Firm Supply   Difficulty: 2

% Correct Responses: 59   Discrimination Index: 33

Correct Answer: D

22.1 A profit maximizing firm continues to operate even though it is losing money. It sells its product at a price of $100. From these facts we deduce that:

(a) average total cost is less than $100.

(b) average fixed cost is less than $100.

(c) marginal cost is increasing.

(d) average variable cost is less than $100.

(e) marginal cost is decreasing.

Topic: Firm Supply   Difficulty: 1

% Correct Responses: 54   Discrimination Index: 27

Correct Answer: C

22.2 A profit maximizing dairy farm is currently producing 10,000 gallons of milk per day. The government is considering two alternative policies. One is to give the farm a lump sum subsidy of $500 per month. The other policy is to give the farm a subsidy of $.05 per gallon of output.

(a) Both kinds of subsidy will increase production at this farm.

(b) Neither subsidy will affect production at this farm, since output is determined by profit maximization.

(c) Production at this farm will be increased if the per unit subsidy is adopted, but not if the lump-sum subsidy is adopted.

(d) Which subsidy has the greater effect on production at this farm depends on whether fixed costs are greater than variable costs.

(e) Production will be increased by either kind of subsidy if and only if there are not decreasing returns to scale.

Topic: Firm Supply

Difficulty: 1

% Correct Responses: 72

Discrimination Index: 14

Correct Answer: C

22.3 Marge Costa produces plastic dog dishes using a process that requires only labor and plastic as inputs and has constant returns to scale. With the process she is currently using, a laborer can turn out 30 dog dishes an hour. The wage rate is $9 per hour. The plastic in a dog dish costs Marge $.10. She has no other costs besides labor and plastic. Marge faces a perfectly competitive market for plastic dog dishes, and she decides that she is maximizing profits when she makes 300 dog dishes an hour. What is the market price of dog dishes?

(a) $.21

(b) $.32

(c) $.40

(d) $.27

(e) $.28

Topic: Firm Supply

Difficulty: 3

% Correct Responses: 57

Discrimination Index: 43

Correct Answer: E

22.4 A competitive firm uses two variable factors to produces its output, with a production function $q = min\{x_1, x_2\}$. The price of factor 1 is 2 and the price of factor 2 is 5. Due to a lack of warehouse space, the company cannot use more than 22 units of x_1. The firm must pay a fixed cost of 88 if it produces any positive amount, but doesn't have to pay this cost if it produces no output. What is the smallest integer price that would make a firm willing to produce a positive amount?

(a) 24

(b) 21

(c) 13

(d) 7

(e) 11

Topic: Firm Supply   Difficulty: 3
% Correct Responses: 57   Discrimination Index: 43
Correct Answer: E

22.5   A competitive firm uses two variable factors to produces its output, with a production function $q = min\{x_1, x_2\}$. The price of factor 1 is 5 and the price of factor 2 is 1. Due to a lack of warehouse space, the company cannot use more than 18 units of x_1. The firm must pay a fixed cost of 72 if it produces any positive amount, but doesn't have to pay this cost if it produces no output. What is the smallest integer price that would make a firm willing to produce a positive amount?

(a) 22

(b) 19

(c) 15

(d) 6

(e) 10

Topic: Firm Supply   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 33
Correct Answer: A

22.6   A competitive firm has a single factory with the cost function $c(y) = 4y^2 + 89$ and produces 28 units in order to maximize profits. Although the price of output does not change, the firm decides to build a second factory with the cost function $c(y) = 8y^2 + 39$. To maximize its profits, how many units should it produce in the second factory?

(a) 14

(b) 21

(c) 9

(d) 13

(e) None of the above.

Topic: Firm Supply

Difficulty: 2

% Correct Responses: 73

Discrimination Index: 51

Correct Answer: B

22.7   A competitive firm is choosing an output level to maximize its profits in the short run. Which of the following is not necessarily true? (Assume that marginal cost is not constant and is well-defined at all levels of output.)

(a) Marginal cost is at least as large as average variable cost.

(b) Total revenues are at least as large as total costs.

(c) Price is at least as large as average variable cost.

(d) Price equals marginal cost.

(e) The marginal cost curve is rising.

Topic: Firm Supply

Difficulty: 2

% Correct Responses: 55

Discrimination Index: 32

Correct Answer: D

22.8   A competitive, capitalistic firm produces gift-wrapped pieces of the Berlin wall, using the standard Marxian inputs, K and L. The production function is $y = (K + L)^{1/2}$, where y is the number of pieces produced. Neglect the use of the wall itself. The price of capital, K, is r, and the price of labor, L, is w. Which of the following is true?

(a) Regardless of w and r, cost minimization requires that $K = L$.

(b) The technology has increasing returns to scale.

(c) If $r > w$, then $L = 0$.

(d) If $r > w$, then $K = 0$.

(e) None of the above.

Topic: Firm Supply

Difficulty: 2

% Correct Responses: 63

Discrimination Index: 60

Correct Answer: A

22.9   A competitive firm has a long run total cost function $c(y) = 3y^2 + 243$ for $y > 0$ and $c(0) = 0$. Its long run supply function is described as follows:

(a) $y = p/6$ if $p > 54$, $y = 0$ if $p < 54$.

(b) $y = p/3$ if $p > 52$, $y = 0$ if $p < 52$.

(c) $y = p/3$ if $p > 57$, $y = 0$ if $p < 63$.

(d) $y = p/6$ if $p > 57$, $y = 0$ if $p < 57$.

(e) $y = p/3$ if $p > 59$, $y = 0$ if $p < 49$.

Topic: Firm Supply   Difficulty: 2
% Correct Responses: 63   Discrimination Index: 60
Correct Answer: A

22.10   A competitive firm has a long run total cost function $c(y) = 5y^2 + 1,280$ for $y > 0$ and $c(0) = 0$. Its long run supply function is described as follows:

(a) $y = p/10$ if $p > 160$, $y = 0$ if $p < 160$.

(b) $y = p/5$ if $p > 158$, $y = 0$ if $p < 158$.

(c) $y = p/5$ if $p > 163$, $y = 0$ if $p < 175$.

(d) $y = p/10$ if $p > 163$, $y = 0$ if $p < 163$.

(e) $y = p/5$ if $p > 165$, $y = 0$ if $p < 155$.

Topic: Firm Supply   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 49
Correct Answer: A

22.11   A competitive firm uses two inputs and has a production function $f(x_1, x_2) = 22x_1^{.25}x_2^{.25}$. The firm can buy as much of either factor as it likes at factor prices $w_1 = w_2 = 1$. The cost of producing y units of ouput for this firm is:

(a) $2(y/22)^2$.

(b) $22(x_1 + x_2)y$.

(c) $(x_1 + x_2)/22$.

(d) $y/44$.

(e) $y^2/44$.

Topic: Firm Supply   Difficulty: 2
% Correct Responses: 51   Discrimination Index: 49
Correct Answer: A

22.12   A competitive firm uses two inputs and has a production function $f(x_1, x_2) = 19x_1^{.25}x_2^{.25}$. The firm can buy as much of either factor as it likes at factor prices $w_1 = w_2 = 1$. The cost of producing y units of ouput for this firm is:

(a) $2(y/19)^2$.

(b) $19(x_1 + x_2)y$.

(c) $(x_1 + x_2)/19$.

(d) $y/38$.

(e) $y^2/38$.

Topic: Firm Supply
% Correct Responses: 65
Correct Answer: A

Difficulty: 0
Discrimination Index: 67

22.13 A firm's production function is $f(x_1, x_2) = (min\{x_1, 5x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 4$ per unit and the price of factor 2 is $w_2 = 15$ per unit, then its supply function is given by the equation $S(p) =$

(a) $p/14$.

(b) $p(max\{w_1, 5w_2\})$.

(c) $p(min\{w_1, 5w_2\})$.

(d) $7p$.

(e) $pmin\{4p, 75p\}$.

Topic: Firm Supply
% Correct Responses: 65
Correct Answer: A

Difficulty: 0
Discrimination Index: 67

22.14 A firm's production function is $f(x_1, x_2) = (min\{x_1, 4x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 2$ per unit and the price of factor 2 is $w_2 = 8$ per unit, then its supply function is given by the equation $S(p) =$

(a) $p/8$.

(b) $p(max\{w_1, 4w_2\})$.

(c) $p(min\{w_1, 4w_2\})$.

(d) $4p$.

(e) $pmin\{2p, 32p\}$.

Topic: Firm Supply
% Correct Responses: 78
Correct Answer: A

Difficulty: 0
Discrimination Index: 41

22.15 Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 3s^2 + 27$. If the price he receives for repairing a car is 30, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 5.

(b) 0.

(c) 10.

(d) 7.50.

(e) 15.

22.16 Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 4s^2 + 16$. If the price he receives for repairing a car is 48, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 6.

(b) 0.

(c) 12.

(d) 9.

(e) 18.

22.17 Irma's production function is $f(x_1, x_2) = (min\{x_1, 4x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 6$ and the price of factor 2 is $w_2 = 12$, then her supply function is given by the equation:

(a) $S(p) = p/18$.

(b) $S(p) = p(max\{w_1, 4w_2\})^2$.

(c) $S(p) = p(min\{w_1, 4w_2\})^2$.

(d) $S(p) = 9p$.

(e) $S(p) = min\{6p, 48p\}$.

22.18 Irma's production function is $f(x_1, x_2) = (min\{x_1, 4x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 3$ and the price of factor 2 is $w_2 = 12$, then her supply function is given by the equation:

(a) $S(p) = p/12$.

(b) $S(p) = p(max\{w_1, 4w_2\})^2$.

(c) $S(p) = p(min\{w_1, 4w_2\})^2$.

(d) $S(p) = 6p$.

(e) $S(p) = min\{3p, 48p\}$.

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

22.19   A firm has the long run cost function $C(q) = 7q^2 + 112$. In the long run, it will supply a positive amount of output, so long as the price is greater than:

(a) 112

(b) 120

(c) 28

(d) 56

(e) 61

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

22.20   A firm has the long run cost function $C(q) = 4q^2 + 4$. In the long run, it will supply a positive amount of output, so long as the price is greater than:

(a) 16

(b) 24

(c) 4

(d) 8

(e) 13

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

22.21   A competitive firm produces output according to the production function $y = min(x^3, 1000)$. Let p be the price of output, and let the price of input x be 1. The profit-maximizing output for this firm is:

(a) 1000 if $p > 1$ and 0 otherwise.

(b) 10 for all p.

(c) 1000 for all p.

(d) 0 if $p < 1/100$ and 1000 otherwise.

(e) none of the above.

Topic: Firm Supply   Difficulty: 0
% Correct Responses: 39   Discrimination Index: 21
Correct Answer: D

22.22 A competitive firm produces output according to the production function $y = min(x^2, 100)$. Let w be the price of the factor x, and let the price of output be 1. The demand for x when the price of x is w is given by the function:

(a) 10 when $w < 1$ and 100 otherwise.

(b) 100 for all w.

(c) 10 for all w.

(d) 0 if $w > 10$ and 10 otherwise.

(e) none of the above.

Topic: Firm Supply   Difficulty: 0
% Correct Responses: 40   Discrimination Index: 5
Correct Answer: C

22.23 A competitive firm produces output according to the production function $y = min(x^{1/2}, 10)$. Let w be the price of the factor x, and let the price of output be 1. The demand for factor x when the factor price is w is given by:

(a) $x = min(w^{1/2}, 10)$

(b) $x = max(w^{1/2}/2, 100)$.

(c) $x = min(1/4w^2, 100)$.

(d) $x = 10 + x^2/2$.

(e) none of the above.

22.1   The Lost Mountains of northern Iowa are inhabited by the rare Marshallian deer. Patches of grass are far apart in this rugged land. If a deer finds a fresh patch of grass and spends h hours grazing it, it gets the square root of h units of grass. The deer compete for grass. When there are n deer, it takes a deer n squared minutes to find a fresh patch. A deer can survive if it gets 1 unit of grass every 200 minutes. a) Find the average cost in time of a unit of grass if a deer gets y units of grass from each patch. b) How much time will an efficient deer spend in each patch when there are n deer? (Hint: Min. Avg. Cost) c)Since there is free entry into the deer business, the equilibrium population is the maximum number of efficient deer who can survive. How many is this?

Answer: $a) y + (n\ squared)/y$ $b) n$ minutes. $c) 100$

Chapter 23

Topic: Industry Supply   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 9
Correct Answer: True

23.1   The short run industry supply curve can be found by horizontally summing the short run supply curves of all the individual firms in the industry.

Topic: Industry Supply   Difficulty: 2
% Correct Responses: 98   Discrimination Index: 12
Correct Answer: True

23.2   It is possible to have an industry in which all firms make zero economic profits in long run equilibrium.

Topic: Industry Supply   Difficulty: 1
% Correct Responses: 73   Discrimination Index: 14
Correct Answer: True

23.3   The possibility of more firms entering an industry in the long run tends to make long run industry supply more price elastic than short run industry supply.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 80   Discrimination Index: 14
Correct Answer: True

23.4   In a competitive market, if both demand and supply curves are linear, then a per unit tax of $10 will generate exactly the same deadweight loss as a per unit subsidy of $10.

Topic: Industry Supply   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 26
Correct Answer: True

23.5   If there are constant returns to scale in a competitive industry, then the long run industry supply curve for that industry is horizontal.

Topic: Industry Supply

Difficulty: 2

% Correct Responses: 52

Discrimination Index: 11

Correct Answer: True

23.6 If some firm in an industry has the production function $F(x,y) = x^{3/4}y^{3/4}$ where x and y are the only two inputs in producing the good, then that industry can not be competitive in the long run.

Topic: Industry Supply

Difficulty: 1

% Correct Responses: 67

Discrimination Index: 21

Correct Answer: False

23.7 The market for a good is in equilibrium when the government unexpectedly imposes a quantity tax of \$2 per unit. In the short run, the price will rise by \$2 per unit so that firms can regain their lost revenue and continue to produce.

Topic: Industry Supply   Difficulty: 2
% Correct Responses: 32   Discrimination Index: 18
Correct Answer: C

23.1   In East Icicle, Minnesota, on the northern edge of the corn belt, the growing season is short
and the soil is poor. Corn yields are meager unless a great deal of expensive fertilizer is used. In
Corncrib, Illinois the land is fertile and flat and the growing season is 20 days longer. For any given
expenditure per acre, corn yields are far greater than in East Icicle. Farmers in both places are
profit maximizers who grow corn. We deduce that:

(a) marginal costs are higher in E. Icicle than in Corncrib.

(b) more fertilizer is used per acre in E. Icicle than in Corncrib.

(c) marginal costs are the same in both places.

(d) more fertilizer is used per acre in Corncrib than in E. Icicle.

(e) more than one of the above.

Topic: Industry Supply   Difficulty: 3
% Correct Responses: 32   Discrimination Index: 13
Correct Answer: E

23.2   A competitive industry has 10,000 identical firms. For each firm in the industry, the long
run cost of producing y units of output is $c(y) = \$100 + y^2$ if $y > 0$ and $c(0) = 0$. The government
imposes a lump sum tax of \$300 on each firm in the industry. Firms can avoid this tax only by
going out of business. There is free entry and exit into this industry. In the long run:

(a) the number of firms stays constant and the price of output rises by \$30.

(b) the number of firms doubles and the price of output doubles.

(c) the number of firms is halved and the price of output is doubled.

(d) the number of firms stays constant and the price of output rises by less than \$30.

(e) None of the above.

Topic: Industry Supply

Difficulty: 2

% Correct Responses: 44

Discrimination Index: 59

Correct Answer: B

23.3   The bicycle industry is made up of 100 firms with the long run cost curve $c(y) = 2 + (y^2/2)$ and 80 firms with the long run cost curve $c(y) = y^2/6$. No new firms can enter the industry. What is the long run industry supply curve at prices greater than 2?

(a) $y = 360p$

(b) $y = 340p$

(c) $y = 170p$

(d) $y = 240p$

(e) $y = 375p$

Topic: Industry Supply

Difficulty: 2

% Correct Responses: 44

Discrimination Index: 59

Correct Answer: B

23.4   The bicycle industry is made up of 100 firms with the long run cost curve $c(y) = 2 + (y^2/2)$ and 160 firms with the long run cost curve $c(y) = y^2/10$. No new firms can enter the industry. What is the long run industry supply curve at prices greater than 2?

(a) $y = 920p$

(b) $y = 900p$

(c) $y = 450p$

(d) $y = 800p$

(e) $y = 935p$

Topic: Industry Supply

Difficulty: 2

% Correct Responses: 24

Discrimination Index: 2

Correct Answer: B

23.5   Two firms constitute the entire doghouse industry. One has a long run cost curve of $3 + 4(y^2)/3$ and the other has a long run cost curve of $10 + (y^2/10)$. If no new firms enter the industry, at which of the following prices will exactly one firm operate?

(a) 1

(b) 3

(c) 5

(d) 7

(e) None of the above.

Topic: Industry Supply   Difficulty: 1
% Correct Responses: 84   Discrimination Index: 1
Correct Answer: B

23.6   On a small island, papayas can only be sold in the market in the center of the island. Although papayas only cost 1 to raise, they can be sold in the market for 3. But it costs .1 per kilometer to transport each papaya to market. If an acre of land grows 200 papayas, how much rent does an acre of land 4 kilometers from the market command?

(a) 302

(b) 320

(c) 240

(d) 262

(e) None of the above.

Topic: Industry Supply   Difficulty: 3
% Correct Responses: 26   Discrimination Index: 33
Correct Answer: A

23.7   On a tropical island there are 100 potential boat builders, numbered 1 through 100. Each can build up to 12 boats a year, but anyone who goes into the boat-building business has to pay a fixed cost of 11. Marginal costs differ from person to person. Where y denotes the number of boats built per year, boat builder 1 has a total cost function $c(y) = 11 + y$. Boat builder 2 has a total cost function $c(y) = 11 + 2y$ and, more generally, for each i, from 1 to 100, boat builder i has a cost function $c(y) = 11 + iy$. If the price of boats is 40, how many boats will be built per year?

(a) 468

(b) 348

(c) 174

(d) 702

(e) Any number between 480 and 492 is possible.

Topic: Industry Supply

Difficulty: 3

% Correct Responses: 26

Discrimination Index: 33

Correct Answer: A

23.8   On a tropical island there are 100 potential boat builders, numbered 1 through 100. Each can build up to 12 boats a year, but anyone who goes into the boat-building business has to pay a fixed cost of 11. Marginal costs differ from person to person. Where y denotes the number of boats built per year, boat builder 1 has a total cost function $c(y) = 11 + y$. Boat builder 2 has a total cost function $c(y) = 11 + 2y$ and, more generally, for each i, from 1 to 100, boat builder i has a cost function $c(y) = 11 + iy$. If the price of boats is 20, how many boats will be built per year?

(a) 228

(b) 108

(c) 54

(d) 342

(e) Any number between 240 and 252 is possible.

Topic: Industry Supply

Difficulty: 3

% Correct Responses: 46

Discrimination Index: 52

Correct Answer: B

23.9   Consider a competitive industry with several firms all of which have the same cost function, $c(y) = y^2 + 4$ for $y > 0$ and $c(0) = 0$. The demand curve for this industry is $D(p) = 50 - p$, where p is the price. The long run equilibrium number of firms in this industry is:

(a) 4.

(b) 23.

(c) 25.

(d) 46.

(e) 2.

Topic: Industry Supply   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 15
Correct Answer: C

23.10   Brand X is one of many firms in a competitive industry where each firm has a constant marginal cost of 2 dollars per unit of output. If marginal cost for Brand X rises to 4 dollars per unit and marginal costs of all other firms in the industry stay constant, by how much does the price in the industry increase?

(a) 2

(b) 1

(c) 0

(d) $2/n$ where n is the number of firms in the industry

(e) None of the above.

Topic: Industry Supply   Difficulty: 3
% Correct Responses: 40   Discrimination Index: 21
Correct Answer: B

23.11   A firm uses a single input to produce its output, which is sold in a competitive market. It gets quantity discounts on purchases of its input. If it buys x units of the input, the price it must pay per unit of input is $(36/x) + 5$. If it buys no inputs it doesn't have to pay anything. The firm's production function is $f(x) = 13x - x^2$. If the price of the firm's output is 1, the profit-maximizing amount of input to buy is:

(a) 4.

(b) 0.

(c) 8.

(d) 6.

(e) None of the above.

Topic: Industry Supply

Difficulty: 3

% Correct Responses: 40

Discrimination Index: 21

Correct Answer: B

23.12   A firm uses a single input to produce its output, which is sold in a competitive market. It gets quantity discounts on purchases of its input. If it buys x units of the input, the price it must pay per unit of input is $(441/x) + 3$. If it buys no inputs it doesn't have to pay anything. The firm's production function is $f(x) = 15x - x^2$. If the price of the firm's output is 1, the profit-maximizing amount of input to buy is:

(a) 6.

(b) 0.

(c) 12.

(d) 9.

(e) None of the above.

Topic: Industry Supply

Difficulty: 2

% Correct Responses: 49

Discrimination Index: 22

Correct Answer: A

23.13   Chirimollas grow only on the island of Socorro, off the coast of Mexico. They need very little soil, so virtually an unlimited supply can be grown at a cost of \$4 per unit. When they are exported to the U.S., half of the chirimollas that are shipped rot on the boat and are dumped in the ocean. Shipping costs are \$1 for every unit that is put on board a ship. The demand function for chirimollas in the U.S. is given by the equation $q = 10,000 - 20p^2$. If chirimollas are competitively supplied, the number of units that are sold in the United States will be:

(a) 8000.

(b) 9500.

(c) 9680.

(d) 9190.

(e) 9000.

23.14   An industry has 1000 firms, each with the production function $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. The price of factor 1 is 1 and the price of factor 2 is 1. In the long run, both factors are variable, but in the short run, each firm is stuck with using 100 units of factor 2.The long run industry supply curve:

(a) is upward sloping with zero supply if price is less than 10.

(b) is downward sloping for outputs less than 10.

(c) is horizontal with zero supply for prices less than 2 and infinite supply for prices greater than 2.

(d) is horizontal with zero supply for prices less than 10 and infinite supply for prices greater than 10.

(e) is upward sloping with zero supply if price is less than 20.

23.15   Suppose that all firms in a given industry have the same supply curve given by $S_i(p) = 2p$ when p is greater than or equal to \$2 and $S_i(p) = 0$ when p is less than \$2. Suppose that market demand is given by $D(p) = 12 - p$. If firms continue to enter the industry so long as they can do so profitably, the equilibrium price must be closest to:

(a) \$5.

(b) \$4.

(c) \$2.40.

(d) \$2.

(e) \$1.75.

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: B

Difficulty: 2
Discrimination Index: 0

23.16 In the absence of government interference, there is a constant marginal cost of $6 per ounce for growing marijuana and delivering it to buyers. Suppose that government authorities seize shipments whenever they find them and resell the marijuana that they seize on the open market. The probability that any shipment of marijuana is seized is 0.20. If a shipment is seized, there is no other punishment besides loss of the marijuana that is seized. The effect of the government action is:

(a) to leave prices unchanged.

(b) raise the equilibrium price by 1.50.

(c) lower the equilibrium price by 0.75.

(d) raise the equilibrium price by 3

(e) raise the equilibrium price by 1.20

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: B

Difficulty: 2
Discrimination Index: 0

23.17 In the absence of government interference, there is a constant marginal cost of $7 per ounce for growing marijuana and delivering it to buyers. Suppose that government authorities seize shipments whenever they find them and resell the marijuana that they seize on the open market. The probability that any shipment of marijuana is seized is 0.10. If a shipment is seized, there is no other punishment besides loss of the marijuana that is seized. The effect of the government action is:

(a) to leave prices unchanged.

(b) raise the equilibrium price by 0.78.

(c) lower the equilibrium price by 0.39.

(d) raise the equilibrium price by 1.56

(e) raise the equilibrium price by 0.70

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.18   In the problem discussed in your workbook, the cost of capturing a cockatoo and transporting him to the U.S. is about $40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to $900, then the equilibrium price of cockatoos in the U.S. will be:

(a) 288.89.

(b) 130.

(c) 85.

(d) 67.

(e) 200.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.19   In the problem discussed in your workbook, the cost of capturing a cockatoo and transporting him to the U.S. is about $40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to $1,400, then the equilibrium price of cockatoos in the U.S. will be:

(a) 400.

(b) 180.

(c) 110.

(d) 82.

(e) 311.11.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.20   In the absence of government interference, there is a constant marginal cost of \$5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.10 and the fine if a shipper is caught is \$50 per ounce, then the equilibrium price of marijuana per ounce is:

(a) 11.11.

(b) 10.

(c) 55.

(d) 4.50.

(e) 5.50.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.21   In the absence of government interference, there is a constant marginal cost of \$5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.30 and the fine if a shipper is caught is \$15 per ounce, then the equilibrium price of marijuana per ounce is:

(a) 13.57.

(b) 9.50.

(c) 20.

(d) 3.50.

(e) 6.50.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

23.22   In a certain industry, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 3 units of output, what is its total variable costs?

(a) \$18

(b) \$7

(c) \$13.50

(d) \$9

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

23.23   In a certain industry, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 6 units of output, what is its total variable costs?

(a) $72

(b) $34

(c) $54

(d) $36

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 12   Discrimination Index: 15
Correct Answer: A

23.24   An industry has 100 firms. These firms have identical production functions. In the short run, each firm has fixed costs of $400. There are two variable factors in the short run and output is given by $y = (min(x_1, 4x_2))^{1/2}$. The cost of factor 1 is $4 per unit and the cost of factor 2 is $2 per unit. In the short run, the industry supply curve is given by:

(a) $Q = 100p/9$

(b) $Q = 100p/8$

(c) $Q = 600p^{1/2}$

(d) the part of the line $Q = 50(min(4, 8))$ for which $pQ > 400/Q$.

(e) None of the above.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 12   Discrimination Index: 15
Correct Answer: A

23.25   An industry has 100 firms. These firms have identical production functions. In the short run, each firm has fixed costs of $200. There are two variable factors in the short run and output is given by $y = (min(x_1, 4x_2))^{1/2}$. The cost of factor 1 is $5 per unit and the cost of factor 2 is $3 per unit. In the short run, the industry supply curve is given by:

(a) $Q = 100p/11.50$

(b) $Q = 100p/10$

(c) $Q = 633.33p^{1/2}$

(d) the part of the line $Q = 50(min(5, 12))$ for which $pQ > 200/Q$.

(e) None of the above.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

23.26   The cheese business in Lake Fon-du-lac, Wisconsin is a competitive industry. All cheese manufacturers have the cost function $C = Q^2 + 9$, while demand for cheese in the town is given by $Q_d = 120 - P$. The long run equilibrium number of firms in this industry is

(a) 19

(b) 38

(c) 34

(d) 120

(e) 39

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

23.27   The cheese business in Lake Fon-du-lac, Wisconsin is a competitive industry. All cheese manufacturers have the cost function $C = Q^2 + 16$, while demand for cheese in the town is given by $Q_d = 120 - P$. The long run equilibrium number of firms in this industry is

(a) 14

(b) 28

(c) 22

(d) 120

(e) 29

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

23.28 In Baggs, Wyoming, cattle can be produced according to the following process:
$C = (G/10) + (P/30)$
where C is the number of cattle, G are bushels of grain, and P are acres of pasture. If grain costs $5 per bushel, and pasture costs $4 per acre, how many cattle can Rancher Roy produce with a budget of $9,000?

(a) 1,800

(b) 225

(c) 180

(d) 75

(e) 900

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

23.29 In Baggs, Wyoming, cattle can be produced according to the following process:
$C = (G/10) + (P/40)$
where C is the number of cattle, G are bushels of grain, and P are acres of pasture. If grain costs $2 per bushel, and pasture costs $3 per acre, how many cattle can Rancher Roy produce with a budget of $9,000?

(a) 3,000

(b) 180

(c) 450

(d) 75

(e) 900

Topic: Industry Supply   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

23.1   The cost per bushel of growing corn on a given acre of land depends partly on how intensely the land is farmed and partly on the quality of the soil, the amount of rainfall and the length of the growing season. Suppose that the last three factors are summarized by a single index "f" for fertility. Suppose that the long run total cost of producing y hundred bushels of corn on an acre of land of fertility f is $c(y, f)$ where $c(y, f) = (1 + y^2)/f$ for $y > 0$ and $c(0, f) = 0$. a) Write down a formula for the long run average cost function per hundred bushels of corn from an acre of land of quality f? b) At what level of output is long run average cost minimized on an acre of land of quality f? c) What is the lowest price per hundred bushels at which an acre of land of quality f will be used to produce corn?

Answer: a)$LRAC = (y + 1/y)/f$ b)1 hundred bushels c)$2/f$.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

23.2   The price elasticity of gasoline in the United States has been estimated to be 0.15. If this is so, should profit maximizing gasoline stations raise their prices? (Explain why or why not.)

Answer: Individual station's price elasticities of demand are quite elastic because of competition between stations.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

23.3   The price elasticity of demand for gasoline in the United States is equal to 0.15. How should the price elasticity of demand for the individual firm compare to 0.15 (*higher*, lower, same, can't tell)? Explain why.

Chapter 24

Topic: Monopoly   Difficulty: 1
% Correct Responses: 76   Discrimination Index: 37
Correct Answer: True

24.1　Since a monopoly charges a price higher than marginal cost, it will produce an inefficient amount of output.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 45   Discrimination Index: 22
Correct Answer: False

24.2　If the interest rate is 10%, a monopolist will choose a markup of price over marginal cost of at least 10%.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 73   Discrimination Index: 13
Correct Answer: False

24.3　A natural monopoly occurs when a firm gains ownership of the entire stock of some natural resource and thus is able to exclude other producers.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

24.4　Since a monopoly makes excess profits beyond the normal rate of return on investment, an investor is likely to get a higher rate of return in the stock market by investing in monopolistic rather than competitive industries.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 90   Discrimination Index: 3
Correct Answer: True

24.5　If he produces anything at all, a profit-maximizing monopolist with some fixed costs and no variable costs will set price and output so as to maximize revenue.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 85   Discrimination Index: 29
Correct Answer: True

24.6   For a monopolist who faces a downward sloping demand curve, marginal revenue is less than price whenever quantity sold is positive.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 32
Correct Answer: True

24.7   A monopolist with constant marginal costs faces a demand curve with a constant elasticity of demand and does not practice price discrimination. If the government imposes a tax of $1 per unit of goods sold by the monopolist, the monopolist will increase his price by more than $1 per unit.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

24.8   A monopolist will always equate marginal revenue and marginal cost when maximizing profit.

Topic: Monopoly

% Correct Responses: 20

Correct Answer: C

Difficulty: 2

Discrimination Index: 33

24.1   A monopolist faces the inverse demand function described by $p = 32 - 5q$ where q is output. The monopolist has no fixed cost and his marginal cost is 7 at all levels of output. Which of the following expresses the monopolist's profits as a function of his output?

(a) $32 - 5q - 7$

(b) $32 - 10q$

(c) $25q - 5q^2$

(d) $32q - 5q^2 - 7$

(e) None of the above.

Topic: Monopoly

% Correct Responses: 20

Correct Answer: C

Difficulty: 2

Discrimination Index: 33

24.2   A monopolist faces the inverse demand function described by $p = 29 - 2q$ where q is output. The monopolist has no fixed cost and his marginal cost is 6 at all levels of output. Which of the following expresses the monopolist's profits as a function of his output?

(a) $29 - 2q - 6$

(b) $29 - 4q$

(c) $23q - 2q^2$

(d) $29q - 2q^2 - 6$

(e) None of the above.

Topic: Monopoly

% Correct Responses: 91

Correct Answer: E

Difficulty: 1

Discrimination Index: 23

24.3   A monopolist faces the inverse demand curve $p = 192 - 4q$. At what level of output is his total revenue maximized?

(a) 36

(b) 34

(c) 12

(d) 48

(e) 24

Topic: Monopoly

Difficulty: 1

% Correct Responses: 91

Discrimination Index: 23

Correct Answer: E

24.4   A monopolist faces the inverse demand curve $p = 288 - 6q$. At what level of output is his total revenue maximized?

(a) 36

(b) 34

(c) 12

(d) 48

(e) 24

Topic: Monopoly

Difficulty: 2

% Correct Responses: 69

Discrimination Index: 23

Correct Answer: B

24.5   The demand for a monopolist's output is 7000 divided by the square of the price in dollars that it charges per unit. The firm has constant marginal costs equal to 1 dollar per unit. To maximize its profits it should charge a price of:

(a) 1.

(b) 2.

(c) 3.

(d) 1.5.

(e) 2.5.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 27

Correct Answer: A

24.6   A profit-maximizing monopolist faces the demand curve, $q = 100 - 3p$. It produces at a constant marginal cost of $20 per unit. A quantity tax of $10 per unit is imposed on the monopolist's product. The price of the monopolist's product:

(a) rises by $5.

(b) rises by $10.

(c) rises by $20.

(d) rises by $12.

(e) stays constant.

Topic: Monopoly
% Correct Responses: 39
Correct Answer: C

Difficulty: 2
Discrimination Index: 44

24.7   The demand for a monopolist's output is 10,000 divided by the square of the price he charges. The monopolist produces at a constant marginal cost of \$5. If the government imposes a sales tax of \$10 per unit on the monopolist's output, the monopolists price will rise by:

(a) \$5.

(b) \$10.

(c) \$20.

(d) \$12.

(e) None of the above.

Topic: Monopoly
% Correct Responses: 56
Correct Answer: C

Difficulty: 2
Discrimination Index: 35

24.8   The demand for a monopolist's output is $2,000/(p+1)^2$ where p is the price she charges. At a price of 3, the elasticity of demand for the monopolist's output is:

(a) -1.

(b) -2.50.

(c) -1.50.

(d) -2.

(e) -1.

Topic: Monopoly
% Correct Responses: 56
Correct Answer: C

Difficulty: 2
Discrimination Index: 35

24.9   The demand for a monopolist's output is $4,000/(p+5)^2$ where p is the price she charges. At a price of 9, the elasticity of demand for the monopolist's output is:

(a) -1.

(b) -2.29.

(c) -1.29.

(d) -1.79.

(e) -0.79.

Topic: Monopoly   Difficulty: 3
% Correct Responses: 57   Discrimination Index: 33
Correct Answer: D

24.10   The demand for a monopolist's output is $3,000/(p+1)^2$ where p is her price. She has constant marginal costs equal to $5 per unit. What price will she charge to maximize her profits?

(a) 15

(b) 6

(c) 14

(d) 11

(e) 5

Topic: Monopoly   Difficulty: 3
% Correct Responses: 57   Discrimination Index: 33
Correct Answer: D

24.11   The demand for a monopolist's output is $6,000/(p+3)^2$ where p is her price. She has constant marginal costs equal to $5 per unit. What price will she charge to maximize her profits?

(a) 20

(b) 8

(c) 17

(d) 13

(e) 5

Topic: Monopoly   Difficulty: 2
% Correct Responses: 60   Discrimination Index: 36
Correct Answer: D

24.12   A monopolist faces a constant marginal cost of $1 per unit. If at the price he is charging, the price elasticity of demand for the monopolist's output is $-.5$, then:

(a) the price he is charging must be 2.

(b) the price he is charging must exceed 2.

(c) the price he is charging must be less than 2.

(d) the monopolist can not be maximizing profits.

(e) the monopolist must use price discrimination.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 0
Correct Answer: E

24.13   A profit-maximizing monopolist sets:

(a) price equal to average cost.

(b) price equal to marginal cost.

(c) price equal to marginal cost plus a pro-rated share of overhead.

(d) price equal to marginal revenue.

(e) marginal revenue equal to marginal cost.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 38   Discrimination Index: 32
Correct Answer: C

24.14   A monopolist has decreasing average costs as output increases. If the monopolist sets price equal to average cost, it will:

(a) produce too much output from the standpoint of efficiency.

(b) lose money.

(c) produce too little output from the standpoint of efficiency.

(d) maximize its profits.

(e) face excess demand.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 87   Discrimination Index: 24
Correct Answer: D

24.15   A profit maximizing monopolist faces a downward sloping demand curve that has a constant elasticity of −4. The firm finds it optimal to charge a price of 60 for its output. What is its marginal cost at this level of output?

(a) 23.50

(b) 136

(c) 120

(d) 45

(e) 60

Topic: Monopoly

Difficulty: 1

% Correct Responses: 87

Discrimination Index: 24

Correct Answer: D

24.16 A profit maximizing monopolist faces a downward sloping demand curve that has a constant elasticity of -2. The firm finds it optimal to charge a price of 60 for its output. What is its marginal cost at this level of output?

(a) 16

(b) 91

(c) 120

(d) 30

(e) 60

Topic: Monopoly

Difficulty: 2

% Correct Responses: 82

Discrimination Index: 3

Correct Answer: D

24.17 A monopolist has constant marginal costs of $1 per unit. The demand for her output is $1000/p$ if p is less than or equal to 50. The demand is 0 if $p > 50$. What is her profit maximizing level of output?

(a) 5

(b) 10

(c) 15

(d) 20

(e) 25

Topic: Monopoly

Difficulty: 2

% Correct Responses: 42

Discrimination Index: 32

Correct Answer: B

24.18 The demand curve for the output of a certain industry is linear, $q = A - Bp$. There are constant marginal costs of C. For all values of A, B, and C such that $A > 0, B > 0$, and $0 < C < A/B$:

(a) if the industry is monopolized, prices will be exactly twice as high as they would be if the industry were competitive.

(b) if the industry is competitive, output will be exactly twice as great as it would be if the industry were monopolized.

(c) if the industry is monopolized, prices will be more than twice as high as if the industry is competitive.

(d) if the industry is monopolized, output will be more than half as large as it would be if the industry were competitive.

(e) None of the above.

Topic: Monopoly   Difficulty: 3
% Correct Responses: 15   Discrimination Index: 0
Correct Answer: B

24.19   A monopolist receives a subsidy from the government for every unit of output that is consumed. He has constant marginal costs and the subsidy that he gets per unit of output is greater than his marginal cost of production. But to get the subsidy on a unit of output, somebody has to consume it. From these facts we can conclude that:

(a) he will pay consumers to consume his product.

(b) if he sells at a positive price, demand must be inelastic at that price.

(c) he will sell at a price where demand is elastic.

(d) he will give the good away.

(e) None of the above.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 59   Discrimination Index: 24
Correct Answer: C

24.20   A monopolist faces the demand curve $q = 110 - p/2$ where q is the number of units sold and p is the price in dollars. He has quasi-fixed costs, C, and constant marginal costs of \$20 per unit of output. Therefore his total costs are $C + 20q$ if $q > 0$ and 0 if $q = 0$. What is the largest value of C for which he would be willing to produce positive output?

(a) \$20

(b) \$4,000

(c) \$5,000

(d) \$7,500

(e) \$6,000

24.21   A monopolist faces the demand curve $q = 115 - p/2$ where q is the number of units sold and p is the price in dollars. He has quasi-fixed costs, C, and constant marginal costs of \$30 per unit of output. Therefore his total costs are $C + 30q$ if $q > 0$ and 0 if $q = 0$. What is the largest value of C for which he would be willing to produce positive output?

(a) \$30

(b) \$4,000

(c) \$5,000

(d) \$7,500

(e) \$6,000

24.22   A natural monopolist has the a total cost function $c(q) = 350 + 20q$ where q is its output. The inverse demand function for the monopolist's product is $p = 100 - 2q$. Government regulations require this firm to produce a positive amount and to set price equal to average cost. To comply with these requirements:

(a) is impossible for this firm.

(b) the firm must produce 40 units.

(c) the firm could produce either 5 units or 35 units.

(d) the firm must charge a price of 70.

(e) the firm must produce 20 units.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 20
Correct Answer: D

24.23   A monopolist has the total cost function, $c(q) = 1,300 + 7q$. The inverse demand function is $110 - 2q$, where prices and costs are measured in dollars. If the firm is required by law to meet demand at a price equal to its marginal cost:

(a) the firm's profits will be zero.

(b) the firm will lose $650.

(c) the firm will make positive profit, but not as much profit as it would make if it were allowed to choose its own price.

(d) the firm will lose $1,300

(e) the firm will lose $780

24.24   A monopolist has the total cost function, $c(q) = 850 + 4q$. The inverse demand function is $190 - 5q$, where prices and costs are measured in dollars. If the firm is required by law to meet demand at a price equal to its marginal cost:

(a) the firm's profits will be zero.

(b) the firm will lose $425.

(c) the firm will make positive profit, but not as much profit as it would make if it were allowed to choose its own price.

(d) the firm will lose $850

(e) the firm will lose $510

Topic: Monopoly

Difficulty: 2

% Correct Responses: 61

Discrimination Index: 10

Correct Answer: B

24.25   A monopolist enjoys a monopoly over the right to sell automobiles on a certain island. He imports automobiles from abroad at a cost of $10,000 each and sells them at the price that maximizes profits. One day, the island's government annexes a neighboring island and extends the monopolist's monopoly rights to this island. People on the annexed island have the same tastes and incomes and there are just as many people as on the first.

(a) The monopolist doubles his price and his sales stay constant.

(b) The monopolist keeps his price constant and his sales double.

(c) The monopolist raises his price but does not necessarily double it.

(d) The monopolist's profits more than double.

(e) None of the above.

Topic: Monopoly

Difficulty: 3

% Correct Responses: 41

Discrimination Index: 53

Correct Answer: D

24.26   An airline has exclusive landing rights at the local airport. The airline flies one flight per day to New York with a plane that has a seating capacity of 100. The cost of flying the plane per day is $4,000 $+10q$ where q is the number of passengers. The number of flights to New York demanded is $q = 165 - .5p$. If the airline maximizes its monopoly profits, the difference between the marginal cost of flying an extra passenger and the amount the marginal passenger is willing to pay to fly to New York is:

(a) $10.

(b) $100.

(c) $140.

(d) $160.

(e) None of the above.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 65

Discrimination Index: 25

Correct Answer: D

24.27 A monopoly has the demand curve $q = 10,000 - 100p$. Its total cost function is $c(q) = 1000 + 10q$. The government plans to tax the monopoly's profits at a rate of 50%. If it does so:

(a) the monopoly will increase its price by 50%.

(b) the monopoly will increase its price by more than 50%.

(c) the monopoly will recover some, but not all of the tax it pays by increasing its price.

(d) the monopoly will not change its price or the quantity it sells.

(e) none of the above.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

24.28 A monopolist faces a downward-sloping demand curve and has fixed costs so large that when he maximizes profits with a positive amount of output, he earns exactly zero profits. At this positive, profit-maximizing output, it must be that:

(a) there are decreasing returns to scale.

(b) demand is price inelastic.

(c) marginal revenue is greater than marginal cost.

(d) price equals marginal cost.

(e) average total cost is greater than marginal cost.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 70   Discrimination Index: 45
Correct Answer: D

24.29   A computer software firm has developed a new and better spreadsheet program. The program is protected by copyrights, so the firm can act as a monopolist for this product. The demand function for the spreadsheet is $q = 50,000 - 100p$. Any single consumer will want only one copy. The marginal cost of producing and distributing another copy and its documentation is just \$10 per copy. If the company sells this software at the profit maximizing monopoly price, the number of consumers who would not buy the software at the monopoly price but would be willing to pay at least the marginal cost is:

(a) 50,000.

(b) 12,000.

(c) 14,000.

(d) 25,000.

(e) None of the above.

Topic: Monopoly   Difficulty: 3
% Correct Responses: 21   Discrimination Index: 9
Correct Answer: D

24.30   The town council of Frostbite, Ontario is trying to decide whether to build an outdoor skating rink which would cost \$1 million and last for only one season. Operating costs would be zero. Yearly passes would be sold to anyone who wanted to use the rink. If p is the price of the pass in dollars, the number demanded would be $q = 1200 - .6p$. The council has asked you to advise them on building the rink. You should tell them:

(a) revenues won't cover construction costs at any ticket price. There is no way to increase total consumer surplus by building the rink.

(b) if the rink is built and price is set to maximize profits, the town makes a profit and consumers will be better off.

(c) if the rink is built and price set to maximize profits, the town makes a profit but consumers are worse off than without a rink.

(d) there is no price at which ticket revenues still cover costs, but total consumer surplus from the rink exceeds costs.

(e) None of the above.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 58   Discrimination Index: 35
Correct Answer: C

24.31   A monopolist produces at a point where the price elasticity of demand is $-.7$ and the marginal cost is 2. If you were hired to advise this monopolist on how to increase his profits, you would find that the way to increase his profits is to:

(a) increase his output.

(b) lower the price.

(c) decrease his output.

(d) produce the output level where marginal cost equals price.

(e) increase his advertising efforts.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 22
Correct Answer: C

24.32   The Hard Times Concrete company is a monopolist in the concrete market. It uses two inputs, cement and gravel, which it buys in competitive markets. The company's production function is $q = c^{1/2}g^{1/2}$ where q is its output, c is the amount of cement it uses, and g is the amount of gravel it uses. If the price of cement goes up the firm's demand for cement:

(a) goes down and its demand for gravel goes up.

(b) goes down and its demand for gravel goes down.

(c) goes down and its demand for gravel may go up, down, or remain the same, depending on the demand function for concrete.

(d) may go up, down, or not change, based on whether the cement's elasticity of demand is less than, equal to, or greater than -1.

(e) could go up or down, but must move in the opposite direction from its demand for gravel.

Topic: Monopoly

Difficulty: 1

% Correct Responses: 80

Discrimination Index: 41

Correct Answer: B

24.33 In a market with inverse demand curve $P = 10 - Q$, Brand X is a monopolist with no fixed costs and with a marginal cost of 2. If marginal cost rises to 4, by how much will the price of Brand X rise?

(a) 2

(b) 1

(c) 3

(d) No change, the firm is already charging the monopoly price.

(e) None of the above.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 43

Discrimination Index: 23

Correct Answer: C

24.34 Charlie can work as many hours as he wishes at a local fast food restaurant for a wage of \$4 per hour. Charlie also does standup comedy. Since Charlie lives in a quiet, rather solemn midwestern town, he is the town's only comedian and has a local monopoly for standup comedy. The demand for comedy is $Q = 40 - P$ where Q is the number of hours of comedy performed per week and P is the price charged per hour of comedy. When Charlie maximizes his utility, he spends at least one hour per week working at the restaurant and he gets at least one hour of leisure time. His utility depends only on income and leisure. How many hours per week does he perform standup comedy?

(a) 36

(b) 40

(c) 18

(d) 20

(e) We can't tell without knowing his utility function.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 63   Discrimination Index: 23
Correct Answer: D

24.35   A certain monopolist has a positive marginal cost of production. Despite this fact, the monopolist decides to produce a quantity of output that maximizes total revenues. Assume that the marginal revenue curve for this monopolist always has a negative slope. Then the monopolist:

(a) is minimizing its profits.

(b) produces the same output that it would if it maximized profits.

(c) produces less output than it would if it maximized profits.

(d) produces more output than it would if it were maximizing profits.

(e) produces an output where marginal revenue is strictly less than 1.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 9
Correct Answer: D

24.36   The demand curve facing a monopolist is $D(p) = 100/p$ if p is 20 or smaller and $D(p) = 0$ if $p > 20$. The monopolist has a constant marginal cost of $1 per unit produced. What is the profit-maximizing quantity of output for this monopolist?

(a) 4

(b) 3

(c) 2

(d) 5

(e) Cannot be determined.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 74

Discrimination Index: 37

Correct Answer: B

24.37 An industry has two firms, a leader and a follower. The demand curve for the industry's output is given by the function $p = 320 - 4q$, where q is total industry output. Each firm has zero marginal cost. The leader chooses his quantity first, knowing that the follower will observe the leader's choice and choose his quantity to maximize profits, given the quantity produced by the leader. The leader will choose an output of:

(a) 26.67.

(b) 40.

(c) 20.

(d) 80.

(e) None of the above.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 74

Discrimination Index: 37

Correct Answer: B

24.38 An industry has two firms, a leader and a follower. The demand curve for the industry's output is given by the function $p = 80 - 2q$, where q is total industry output. Each firm has zero marginal cost. The leader chooses his quantity first, knowing that the follower will observe the leader's choice and choose his quantity to maximize profits, given the quantity produced by the leader. The leader will choose an output of:

(a) 13.33.

(b) 20.

(c) 10.

(d) 40.

(e) None of the above.

Topic: Monopoly   Difficulty: 1
% Correct Responses: 72   Discrimination Index: 19
Correct Answer: A

24.39   A monopolist faces a constant marginal cost of \$1 per unit and has no fixed costs. If the price elasticity of demand for this product is constant and equal to -3, then:

(a) to maximize profits, he should charge a price of 1.50.

(b) to maximize profits, he should charge a price of 3.

(c) to maximize profits, he should charge a price of 1.33.

(d) he is not maximizing profits.

(e) none of the above

Topic: Monopoly   Difficulty: 1
% Correct Responses: 72   Discrimination Index: 19
Correct Answer: A

24.40   A monopolist faces a constant marginal cost of \$1 per unit and has no fixed costs. If the price elasticity of demand for this product is constant and equal to -5, then:

(a) to maximize profits, he should charge a price of 1.25.

(b) to maximize profits, he should charge a price of 5.

(c) to maximize profits, he should charge a price of 1.20.

(d) he is not maximizing profits.

(e) none of the above

Topic: Monopoly   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.41   A profit-maximizing monopolist has the cost schedule, $c(y) = 10y$. The demand for her product is given by $y = 800/p^3$ where p is her price. Suppose that the government tries to get her to increase her output by giving her a subsidy of 18 dollars for every unit that she sells. Giving her the subsidy would make her:

(a) decrease her price by 9 dollars.

(b) decrease her price by 18 dollars.

(c) decrease her price by 27 dollars.

(d) decrease her price by 45 dollars.

(e) leave her price unchanged.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.42   A profit-maximizing monopolist has the cost schedule, $c(y) = 30y$. The demand for her product is given by $y = 700/p^2$ where p is her price. Suppose that the government tries to get her to increase her output by giving her a subsidy of 8 dollars for every unit that she sells. Giving her the subsidy would make her:

(a) decrease her price by 4 dollars.

(b) decrease her price by 8 dollars.

(c) decrease her price by 16 dollars.

(d) decrease her price by 24 dollars.

(e) leave her price unchanged.

Topic: Monopoly

Difficulty: 2

% Correct Responses: 74

Discrimination Index: 22

Correct Answer: B

24.43   A profit-maximizing monopolist faces a demand function given by $q = 1000 - 20p$ where p is the price of her output in dollars. She has a constant marginal cost of 20 dollars per unit of output. In an effort to induce her to increase her output, the government agrees to pay her a subsidy of 10 dollars for every unit that she produces. In response to the subsidy, she will:

(a) increase her price and lower her output.

(b) decrease her price by $5 per unit.

(c) decrease her price by $10 per unit.

(d) decrease her price by more than $10 per unit, but by less than $16 per unit.

(e) decrease her price by more than $16 per unit.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 36
Correct Answer: A

24.44   A firm has discovered a new kind of non-fattening, non-habit forming dessert called zwiffle.
It doesn't taste very good, but some people like it and it can be produced from old newspapers at
zero marginal cost. Before any zwiffle can be produced, the firm would have to spend a fixed cost
of $F. Demand for zwiffle is given by the equation $q = 20 - p$. The firm has a patent on zwiffle, so
it can have a monopoly in this market.

(a) The firm will produce zwiffle only if F is less than or equal to 100.

(b) The firm will not produce zwiffle if $F > 20$.

(c) The firm will produce 20 units of zwiffle.

(d) The firm will produce 15 units of zwiffle.

(e) None of the above.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 36
Correct Answer: A

24.45   A firm has discovered a new kind of non-fattening, non-habit forming dessert called zwiffle.
It doesn't taste very good, but some people like it and it can be produced from old newspapers at
zero marginal cost. Before any zwiffle can be produced, the firm would have to spend a fixed cost
of $F. Demand for zwiffle is given by the equation $q = 22 - p$. The firm has a patent on zwiffle, so
it can have a monopoly in this market.

(a) The firm will produce zwiffle only if F is less than or equal to 121.

(b) The firm will not produce zwiffle if $F > 22$.

(c) The firm will produce 22 units of zwiffle.

(d) The firm will produce 16.50 units of zwiffle.

(e) None of the above.

Topic: Monopoly   Difficulty: 3
% Correct Responses: 23   Discrimination Index: 22
Correct Answer: B

24.46   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 18 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 86. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 9 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 91 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 18 units of Slops.

(e) None of the above.

Topic: Monopoly   Difficulty: 3
% Correct Responses: 23   Discrimination Index: 22
Correct Answer: B

24.47   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 20 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 105. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 10 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 110 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 20 units of Slops.

(e) None of the above.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 57   Discrimination Index: 21
Correct Answer: A

24.48   The demand for Professor Bongmore's new book is given by the function $Q = 5,000 - 100p$. If the cost of having the book typeset is 7,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by:

(a) having it typeset and selling 2,300 copies.

(b) having it typeset and selling 2,500 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 4,600 copies.

(e) having it typeset and selling 1,150 copies.

Topic: Monopoly   Difficulty: 2
% Correct Responses: 57   Discrimination Index: 21
Correct Answer: A

24.49   The demand for Professor Bongmore's new book is given by the function $Q = 1,000 - 100p$. If the cost of having the book typeset is 12,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by:

(a) having it typeset and selling 300 copies.

(b) having it typeset and selling 500 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 600 copies.

(e) having it typeset and selling 150 copies.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

24.50   Peter Morgan sells pigeon pies from his pushcart in Central Park. Due to the abundant supplies of raw materials, his costs are zero. The demand schedule for his pigeon pies is $p(y) = 90 - y/4$. What level of output will maximize Peter's profits?

(a) 180

(b) 36

(c) 360

(d) 540

(e) None of the above

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

24.51 Peter Morgan sells pigeon pies from his pushcart in Central Park. Due to the abundant supplies of raw materials, his costs are zero. The demand schedule for his pigeon pies is $p(y) = 70 - y/3$. What level of output will maximize Peter's profits?

(a) 105

(b) 21

(c) 210

(d) 315

(e) None of the above

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.52 A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 40 - y$ and its total costs are $c(y) = 9y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 8 dollars per unit of output. After the tax, the monopoly will:

(a) increase its price by 8.

(b) increase its price by 12.

(c) increase its price by 4.

(d) leave its price constant.

(e) none of the above.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.53 A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 100 - y$ and its total costs are $c(y) = 7y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 4 dollars per unit of output. After the tax, the monopoly will:

(a) increase its price by 4.

(b) increase its price by 6.

(c) increase its price by 2.

(d) leave its price constant.

(e) none of the above.

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.54   A monopolist faces a demand function $Q = 4,000/(p+7)^{-2}$. If she charges a price of p, her marginal revenue will be:

(a) $p/2 + 7$

(b) $2p + 3.50$

(c) $p/2 - 7/2$.

(d) $-2(p + 7)^{-3}$

(e) $(p + B)^{-2}$

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.55   A monopolist faces a demand function $Q = 2,000/(p+8)^{-2}$. If she charges a price of p, her marginal revenue will be:

(a) $p/2 + 8$

(b) $2p + 4$

(c) $p/2 - 8/2$.

(d) $-2(p + 8)^{-3}$

(e) $(p + B)^{-2}$

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

24.56   The demand for copies of the software package Macrosoft Doors is given by $Q = 10,000P^{-32}$. The cost to produce Doors is $C = 100,000 + 5Q$. If Macrosoft practices cost plus pricing, what would be the profit maximizing markup?

(a) 100%.

(b) 33.33%.

(c) 14.29%.

(d) 6.67%.

(e) 3.23%.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

24.57   The demand for copies of the software package Macrosoft Doors is given by $Q = 10,000P^{-16}$. The cost to produce Doors is $C = 100,000 + 10Q$. If Macrosoft practices cost plus pricing, what would be the profit maximizing markup?

(a) 100%.

(b) 33.33%.

(c) 14.29%.

(d) 6.67%.

(e) 3.23%.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.58   A major software developer has estimated the demand for its new personal finance software package to be $Q = 1,000,000P^{-1.10}$ while the total cost of the package is $C = 400,000 + 20Q$. If this firm wishes to maximize profit, what percentage markup should it place on this product?

(a) 1,020%.

(b) 1,100%.

(c) 1,000%.

(d) 850%.

(e) 1,150%.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.59   A major software developer has estimated the demand for its new personal finance software package to be $Q = 1,000,000P^{-1.40}$ while the total cost of the package is $C = 100,000 + 20Q$. If this firm wishes to maximize profit, what percentage markup should it place on this product?

(a) 230%.

(b) 150%.

(c) 250%.

(d) 340%.

(e) 200%.

24.60

The Fabulous $50's$ Decor Company is the only producer of pink flamingo lawn statues. While business is not a good as it used to be, in recent times the annual demand has been $Q = 400 - 4P$. Flamingo lawn statues are hand crafted by artisans using the process $Q = min(L, P/9)$, where L is hours of labor, and P is pounds of pink plastic. $P_L = 20$ and $P_P = 4$. What would be the profit maximizing output and price?

(a) $Q = 180$, $P = 55$

(b) $Q = 189.78$, $P = 52.56$

(c) $Q = 199.44$, $P = 50.14$

(d) $Q = 88$, $P = 78$

(e) $Q = 176$, $P = 56$

24.61

The Fabulous $50's$ Decor Company is the only producer of pink flamingo lawn statues. While business is not a good as it used to be, in recent times the annual demand has been $Q = 800 - 2P$. Flamingo lawn statues are hand crafted by artisans using the process $Q = min(L, P/6)$, where L is hours of labor, and P is pounds of pink plastic. $P_L = 15$ and $P_P = 2$. What would be the profit maximizing output and price?

(a) $Q = 393$, $P = 203.50$

(b) $Q = 392.33$, $P = 203.83$

(c) $Q = 399.42$, $P = 200.29$

(d) $Q = 373$, $P = 213.50$

(e) $Q = 746$, $P = 27$

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

24.62 An obscure inventor in Strasburg, North Dakota has a monopoly on a new beverage called Bubbles, which produces an unexplained craving for Lawrence Welk music. Bubbles is produced by the following process: $Q = min(R/5, W)$ where R is pulverized Lawrence Welk records, and W is gallons of North Dakota well water. $P_R = P_W = 1$. Demand for Bubbles is $Q = 2,304P^{-2}A^{0.5}$. If the advertising budget for Bubbles is \$81, the profit maximizing quantity of Bubbles is

(a) 0

(b) 36

(c) 864

(d) 144

(e) 140

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

24.63 An obscure inventor in Strasburg, North Dakota has a monopoly on a new beverage called Bubbles, which produces an unexplained craving for Lawrence Welk music. Bubbles is produced by the following process: $Q = min(R/5, W)$ where R is pulverized Lawrence Welk records, and W is gallons of North Dakota well water. $P_R = P_W = 1$. Demand for Bubbles is $Q = 3,600P^{-2}A^{0.5}$. If the advertising budget for Bubbles is \$64, the profit maximizing quantity of Bubbles is

(a) 0

(b) 40

(c) 1,200

(d) 200

(e) 196

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

24.64   The Cleveland Visitors Bureau is the exclusive national marketer of weekend getaway vacations in Cleveland, Ohio. At current market prices, the price elasticity of demand is 0.50. To maximize profits, the bureau should

(a) Raise prices.

(b) Lower prices.

(c) Do not change prices.

(d) More information is needed to make an accurate judgement.

(e) Run new TV commercials.

Topic: Monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

24.65   The Cleveland Visitors Bureau is the exclusive national marketer of weekend getaway vacations in Cleveland, Ohio. At current market prices, the price elasticity of demand is 1. To maximize profits, the bureau should

(a) Raise prices.

(b) Lower prices.

(c) Do not change prices.

(d) More information is needed to make an accurate judgement.

(e) Run new TV commercials.

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

24.66 In some parts of the world, Red Lizzard Wine is alleged to increase one's longevity. It is produced by the following process:

$Q = min((1/4)L, R)$

where L is the number of spotted red lizzards, and R is gallons of rice wine. $P_L = P_R = 1$. Demand for Red Lizzard Wine in the United States is $Q = 1,600P^{-2}A^{\frac{1}{2}}$. If the advertising budget is \$100, the quantity of wine which should be imported into the US is

(a) 0

(b) 40

(c) 800

(d) 160

(e) 156

Topic: Monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

24.67 In some parts of the world, Red Lizzard Wine is alleged to increase one's longevity. It is produced by the following process:

$Q = min((1/5)L, R)$

where L is the number of spotted red lizzards, and R is gallons of rice wine. $P_L = P_R = 1$. Demand for Red Lizzard Wine in the United States is $Q = 576P^{-2}A^{\frac{1}{2}}$. If the advertising budget is \$81, the quantity of wine which should be imported into the US is

(a) 0

(b) 18

(c) 216

(d) 36

(e) 32

24.1   A baseball team's attendance depends on the number of games it wins per season and on the price of its tickets. The demand function it faces is $Q = N(20 - p)$ where Q is the number of tickets (in hundred thousands) sold per year, p is the price per ticket and N is the fraction of its games that the team wins. The team can increase the number of games it wins by hiring better players. If the team spends C million dollars on players it will win the fraction $.7 - 1/C$ of its games. Over the relevant range, marginal cost of selling an extra ticket is zero. a) Write an expression for the firm's profits as a function of ticket price and expenditure on players. b)Find the ticket price that maximizes revenue. c) Find the profit maximizing expenditure on players and the profit maximizing fraction of games to win.

Answer: $a) (.7 - 1/C)(20 - p)p - C \ b) p = 10 \ c) \ C = 10$

Chapter 25

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 82   Discrimination Index: 35
Correct Answer: True

25.1   Third degree price discrimination occurs when a monopolist sells output to different people at different prices, but every unit that an individual buys costs the same amount.

Topic: Monopoly Behavior   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 19
Correct Answer: False

25.2   A monopolist who is able to practice third degree price discrimination will make greater profits than a monopolist who is able to practice first degree price discrimination.

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 86   Discrimination Index: 3
Correct Answer: False

25.3   A discriminating monopolist is able to charge different prices in two different markets. If when the same price is charged in both markets, the quantity demanded in market 1 is always greater than the quantity demanded in market 2, then in order to maximize profits, the monopolist should charge a higher price in market 1 than in market 2.

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 28   Discrimination Index: 11
Correct Answer: True

25.4   In a monopolistically competitive industry with zero profits, each firm will produce less than the amount that minimizes average costs.

Topic: Monopoly Behavior   Difficulty: 3
% Correct Responses: 61   Discrimination Index: 22
Correct Answer: True

25.5   It is possible that a profit-maximizing monopolist who is able to practice first degree (perfect) price discrimination would sell a quantity x such that the demand curve for his product is inelastic when the quantity sold is x.

Topic: Monopoly Behavior   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 15
Correct Answer: True

25.6   In order to maximize his profits, a monopolist who practices third degree price discrimination with two or more markets should charge higher prices in markets with more inelastic demand functions.

Topic: Monopoly Behavior   Difficulty: 1
% Correct Responses: 71   Discrimination Index: 20
Correct Answer: False

25.7   A profit-maximizing monopolist is able to practice third degree price discrimination. If he charges p_1 in market 1 and p_2 in market 2, where $p_1 > p_2$, it must be that the quantity sold in market 1 is smaller than the quantity sold in market 2.

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 32   Discrimination Index: 24
Correct Answer: False

25.8   A profit-maximizing monopolist practices third degree price discrimination. If he charges p_1 in market 1 and p_2 in market 2, where $p_1 > p_2$, then if the law forced him to charge the same price in both markets, more would be demanded in market 1 than in market 2.

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 74   Discrimination Index: 27
Correct Answer: True

25.9   A price discriminating monopolist charges p_1 in market 1 and p_2 in market 2. If $p_1 > p_2$, it must be that the absolute value of the price elasticity in market 1 at price p_1 is smaller than the absolute value of the price elasticity in market 2 at price p_2.

Topic: Monopoly Behavior   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

25.10   A monopolist who is able to practice third degree price discrimination charges a higher price in the market that is more elastic.

Topic: Monopoly Behavior   Difficulty: 2

% Correct Responses: 31   Discrimination Index: 23

Correct Answer: C

25.1 A monopolist is able to practice third degree price discrimination between two markets. The demand function in the first market is $q = 500 - 2p$ and the demand function in the second market is $q = 1500 - 6p$. To maximize his profits, he should:

(a) charge a higher price in the second market than in the first.

(b) charge a higher price in the first market than in the second.

(c) charge the same price in both markets.

(d) sell only in one of the two markets.

(e) none of the above.

Topic: Monopoly Behavior   Difficulty: 2

% Correct Responses: 45   Discrimination Index: 0

Correct Answer: B

25.2 A monopolist finds that a person's demand for its product depends on the person's age. The inverse demand function of someone of age y, can be written $p = A(y) - q$ where $A(y)$ is an increasing function of y. The product cannot be resold from one buyer to another and the monopolist knows the ages of its consumers. If the monopolist maximizes its profits:

(a) older people will pay higher prices and purchase less of this product.

(b) older people will pay higher prices and purchase more of this product.

(c) older people will pay lower prices and purchase more of this product.

(d) everyone pays the same price but old people consume more.

(e) None of the above.

Topic: Monopoly Behavior

Difficulty: 2

% Correct Responses: 24

Discrimination Index: 22

Correct Answer: B

25.5   A monopolist sells in two markets. The demand curve for her product is given by $p_1 = 303 - 3x_1$ in the first market and $p_2 = 253 - 5x_2$ in the second market, where x_i is the quantity sold in Market i and p_i is the price charged in Market i. She has a constant marginal cost of production, $c = 3$, and no fixed costs. She can charge different prices in the two markets. What is the profit-maximizing combination of quantities for this monopolist?

(a) $x_1 = 100$ and $x_2 = 27$

(b) $x_1 = 50$ and $x_2 = 25$

(c) $x_1 = 75$ and $x_2 = 50$

(d) $x_1 = 60$ and $x_2 = 23$

(e) $x_1 = 70$ and $x_2 = 35$

Topic: Monopoly Behavior

Difficulty: 2

% Correct Responses: 24

Discrimination Index: 22

Correct Answer: B

25.6   A monopolist sells in two markets. The demand curve for her product is given by $p_1 = 119 - 2x_1$ in the first market and $p_2 = 123 - 5x_2$ in the second market, where x_i is the quantity sold in Market i and p_i is the price charged in Market i. She has a constant marginal cost of production, $c = 3$, and no fixed costs. She can charge different prices in the two markets. What is the profit-maximizing combination of quantities for this monopolist?

(a) $x_1 = 58$ and $x_2 = 14$

(b) $x_1 = 29$ and $x_2 = 12$

(c) $x_1 = 41$ and $x_2 = 29$

(d) $x_1 = 39$ and $x_2 = 10$

(e) $x_1 = 49$ and $x_2 = 22$

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 36   Discrimination Index: 46
Correct Answer: B

25.7   A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges $p_1 = 3$ in one market and $p_2 = 7$ in the other market. At these prices, the price elasticity in the first market is -2.50 and the price elasticity in the second market is -0.80. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior   Difficulty: 2
% Correct Responses: 36   Discrimination Index: 46
Correct Answer: B

25.8   A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges $p_1 = 3$ in one market and $p_2 = 9$ in the other market. At these prices, the price elasticity in the first market is -2.50 and the price elasticity in the second market is -0.90. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 47
Correct Answer: A

25.9 A monopolist has a constant marginal cost of \$2 per unit and no fixed costs. He faces separate markets in the U.S. and England. He can set one price p_1 for the American market and another price p_2 for the English market. If demand in the U.S. is given by $Q_1 = 8,400 - 700p_1$, and demand in England is given by $Q_2 = 5,000 - 500p_2$, then the price in America will:

(a) be larger than the price in England by 1.

(b) be smaller than the price in England by 1.

(c) equal the price in England.

(d) be larger than the price in England by 3.

(e) be smaller than the price in England by 3.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 47
Correct Answer: A

25.10 A monopolist has a constant marginal cost of \$2 per unit and no fixed costs. He faces separate markets in the U.S. and England. He can set one price p_1 for the American market and another price p_2 for the English market. If demand in the U.S. is given by $Q_1 = 6,400 - 800p_1$, and demand in England is given by $Q_2 = 6,400 - 400p_2$, then the price in America will:

(a) be larger than the price in England by 4.

(b) be smaller than the price in England by 4.

(c) equal the price in England.

(d) be larger than the price in England by 6.

(e) be smaller than the price in England by 6.

Topic: Monopoly Behavior
% Correct Responses: 42
Correct Answer: C

Difficulty: 0
Discrimination Index: 48

25.11 Roach Motors has a monopoly on used cars in Enigma, Ohio. By installing secret microphones in the showroom, the friendly salespersons at Roach are able to learn each customer's willingness to pay and can therefore practice first degree price discrimination, extracting from each customer his entire consumer surplus. The inverse demand function for cars in Enigma is $P = 2000 - 10Q$. Roach Motors purchases its stock of used cars at an auction in Cleveland for $400 each. Roach motors will

(a) sell 80 cars for a total profit of $64,000.

(b) sell 160 cars at a price of $300 a car.

(c) sell 160 cars for a total profit of $12,8000.

(d) sell 192 cars and make a total profit of $20,4800

(e) shut down since revenue will not cover variable costs.

Topic: Monopoly Behavior
% Correct Responses: 42
Correct Answer: C

Difficulty: 0
Discrimination Index: 48

25.12 Roach Motors has a monopoly on used cars in Enigma, Ohio. By installing secret microphones in the showroom, the friendly salespersons at Roach are able to learn each customer's willingness to pay and can therefore practice first degree price discrimination, extracting from each customer his entire consumer surplus. The inverse demand function for cars in Enigma is $P = 2000 - 10Q$. Roach Motors purchases its stock of used cars at an auction in Cleveland for $700 each. Roach motors will

(a) sell 65 cars for a total profit of $42,250.

(b) sell 130 cars at a price of $300 a car.

(c) sell 130 cars for a total profit of $8,4500.

(d) sell 156 cars and make a total profit of $13,5200

(e) shut down since revenue will not cover variable costs.

Topic: Monopoly Behavior
% Correct Responses: 0
Correct Answer: E

Difficulty: 0
Discrimination Index: 0

25.13 BMW (Bayerische Motoren Werk) charges a considerably higher price for its automobiles in the North American market than it does in its home market of Europe. Assuming that the goal of BMW's pricing policy is profit maximization, which of the following would be a plausible explanation for BMW's pricing policy?

(a) The income elasticity of demand in North America must be greater than 1, making BMWs a luxury good in North America; and between 0 and 1 in Europe, making BMWs a normal good.

(b) The income elasticity of demand in North America must be between 0 and 1, making BMWs a normal good in North America; and between and less than 1 in Europe, making BMWs an inferior good.

(c) The price elasticity of demand in North America must be greater than 1, making demand for BMWs price elastic in North America; and between 0 and 1 in Europe, making demand for BMWs price inelastic.

(d) The income elasticity of demand in both North America and Europe are greater than 1, since BMWs are a luxury good; but per capita income in North America is much higher than in Europe.

(e) The price elasticity of demand is greater than 1 in both North America and Europe, making BMWs price elastic; but must be higher in Europe.

Topic: Monopoly Behavior
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

25.14 A careful analysis of demand for Bubbles in Strasburg, ND reveals a strange segmentation in the market. (Recall Bubbles is the beverage which produces an unexplained craving for Lawrence Welk's music. It is produced by the process $Q = min(R/4, W)$, where R is the number of pulverized Lawrence Welk records, and W is gallons of North Dakota well water. $P_R = 1$, $P_W = 3$.) If demand for Bubbles by senior citizens is described by $Q_o = 500P^{\{-3/2\}}$ while demand by those under 65 years old is $Q_y = 50P^{-2}$, how should Bubbles be priced to maximize profits?

(a) $21 for senior citizens, $14 for those younger.

(b) $10.50 for senior citizens, $14 for those younger.

(c) $7 for senior citizens, $9.33 for those younger.

(d) $16.33 for all citizens of Strasburg.

(e) $36 for senior citizens, $24 for those younger.

25.15   A careful analysis of demand for Bubbles in Strasburg, ND reveals a strange segmentation in the market. (Recall Bubbles is the beverage which produces an unexplained craving for Lawrence Welk's music. It is produced by the process $Q = min(R/5, W)$, where R is the number of pulverized Lawrence Welk records, and W is gallons of North Dakota well water. $P_R = 1$, $P_W = 4$.) If demand for Bubbles by senior citizens is described by $Q_o = 500P^{\{-3/2\}}$ while demand by those under 65 years old is $Q_y = 50P^{-3}$, how should Bubbles be priced to maximize profits?

(a) $27 for senior citizens, $13.50 for those younger.

(b) $13.50 for senior citizens, $27 for those younger.

(c) $9 for senior citizens, $18 for those younger.

(d) $16.20 for all citizens of Strasburg.

(e) $60 for senior citizens, $30 for those younger.

25.16   Miron Floren, of The Lawrence Welk Show fame, now tours the country performing at accordion concerts. A careful analysis of demand for tickets to Mr. Floren's concerts reveals a strange segmentation in the market. Demand for tickets by senior citizens is described by $Q_o = 500P^{\{-3/2\}}$ while demand by those under 65 years old is $Q_y = 50P^{-5}$. If the marginal cost of a ticket is $4, how should tickets to Mr. Floren's concerts be priced to maximize profits?

(a) $12 for senior citizens, $5for those younger.

(b) $20 for senior citizens, $6for those younger.

(c) $4 for senior citizens, $13.33for those younger.

(d) $5.78 for all tickets.

(e) $8 for senior citizens, $16for those younger.

25.17   Miron Floren, of The Lawrence Welk Show fame, now tours the country performing at accordion concerts. A careful analysis of demand for tickets to Mr. Floren's concerts reveals a strange segmentation in the market. Demand for tickets by senior citizens is described by $Q_o = 500P^{\{-3/2\}}$ while demand by those under 65 years old is $Q_y = 50P^{-2}$. If the marginal cost of a ticket is \$2, how should tickets to Mr. Floren's concerts be priced to maximize profits?

(a) \$6 for senior citizens, \$4 for those younger.

(b) \$4 for senior citizens, \$3 for those younger.

(c) \$2 for senior citizens, \$2.67 for those younger.

(d) \$4.67 for all tickets.

(e) \$4 for senior citizens, \$8 for those younger.

25.1   Disneyland has two possibilities for pricing rides at its theme parks: 1) Set $MR = MC$ for each ride and charge the maximum price consumers would bear. 2) Charge an admission fee to the theme park, but allow unlimited rides for free. Using graphs, show which pricing scheme is more profitable for Disneyland.

Chapter 26

Topic: Factor Markets   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 0
Correct Answer: False

26.1   A monopsony occurs when two previously competing firms reach an agreement to collude on price.

Topic: Factor Markets   Difficulty: 1
% Correct Responses: 56   Discrimination Index: 0
Correct Answer: False

26.2   A monopsonist's market power enables him to hire labor at a marginal cost that is lower than the wage rate.

Topic: Factor Markets   Difficulty: 1
% Correct Responses: 38   Discrimination Index: 40
Correct Answer: True

26.3   For a monopsonist, the supply curve of a factor of production is less steep than the marginal cost curve.

Topic: Factor Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

26.4   A coal producer has a monopoly on coal. A different monopoly controls the railroad that takes the coal to market. Each monopolist chooses prices to maximize its profits. If the coal monopolist buys the railroad then it will increase its profits by raising the market price of coal.

Topic: Factor Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

26.5   For a monopsonist, the more elastic the supply of labor, the greater the difference between the marginal cost of labor and the wage rate.

Topic: Factor Markets Difficulty: 2
% Correct Responses: 31 Discrimination Index: 20
Correct Answer: False

26.6   If a monopolist faces a competitive labor market, it will hire labor up to the point where the price of output times the marginal product of labor equals the wage rate.

Topic: Factor Markets Difficulty: 1
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: True

26.7   A monopolist who faces a horizontal labor supply curve will demand less labor than he would if he acted competitively.

Topic: Factor Markets Difficulty: 1
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: False

26.8   If an upstream monopolist sells to a downstream monopolist, the price to consumers will be higher than the competitive price, but not so high as it would be if the downstream monopolist took control of the upstream monopolist's business and ran both the upstream and downstream markets to maximize total profits.

Topic: Factor Markets Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: True

26.9   If a labor market is dominated by a monopolist, it is possible that the imposition of a minimum wage law could INCREASE the amount of employment in that market.

Multiple Choice   # Factor Markets

26.1   A monopolist produces a good using only one factor, labor. There are constant returns to scale in production, and the demand for the monopolist's product is described by a downward-sloping straight line with slope -1. The monopolist faces a horizontal labor supply curve. If the monopolist chooses output to maximize profits, then the:

(a) marginal cost of labor to the monopolist exceeds the wage.

(b) marginal product of labor times price of output equals the wage.

(c) marginal product of labor times price of output is less than the wage.

(d) marginal product of labor times price of output exceeds the wage.

(e) marginal revenue product of labor is less than the wage.

26.2   If a monopsonist pays the wage rate w, then the amount of labor that he can hire is $L(w) = Aw$, where A is a positive constant. The marginal cost of labor to the monopsonist is:

(a) equal to the wage rate.

(b) twice the wage rate.

(c) half the wage rate.

(d) greater than the wage rate but less than twice as great.

(e) less than the wage rate but more than half as great.

Topic: Factor Markets   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

26.3   A profit-maximizing monopsonist hires both men and women to do a certain task. The two sexes are equally good at this task and are regarded as perfect substitutes. Labor supply curves for both sexes are upward-sloping. In order to hire M men, the firm would have to pay men a wage of AM, where A is a positive constant. In order to hire F women, the monopsonist would have to pay a wage of BF^c where B and c are positive constants. Which, if any, of these conditions necessarily implies that he pays a lower wage to women than to men?

(a) $A > B$.

(b) $A < c$.

(c) $c < 1$.

(d) $Bc < A$.

(e) $C > 2$.

Topic: Factor Markets   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

26.4   The frangle industry is a monopoly, with a demand curve $100 - p$, where p is the price of frangles. It takes one unit of labor and no other inputs to produce a frangle. The Frangle-makers Guild is a strong union. The Guild sets a wage and prevents anyone from working for less than that wage. The frangle monopoly must pay that wage but can hire as much labor as it chooses to. If the guild chooses a wage so as to maximize the total earnings (wage times number of units of labor hired) of frangle-makers, then:

(a) the price of frangles will be 50.

(b) the price of frangles will be 25.

(c) the price of frangles will equal the wage rate.

(d) the wage rate will be 25.

(e) the wage will be 50.

26.5 The bauble industry is competitive with free entry. There is a fixed-coefficient technology. One unit of labor and one unit of plastic are required for each bauble. Workers in the bauble industry must all belong to the Bauble-makers Union. The union sets the wage that will be paid to all bauble-makers. The price of plastic is 10 dollars per unit and the demand function for baubles is $1000 - 10p$. Long run equilibrium requires that the price of baubles equals the cost of production. The wage per unit of labor that maximizes total revenue of workers is:

(a) 100.

(b) 10.

(c) 45.

(d) 20.

(e) infinity.

26.6 Suppose that the demand curve for mineral water is given by $p = 20 - 8q$ where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor who buys from a monopolistic producer, who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle. Given his marginal cost of c per unit, the distributor chooses an output to maximize his own profits. Knowing that this is what the distributor will do, the producer sets his price c so as to maximize his revenue. The price paid by consumers under this arrangement is:

(a) 15

(b) 2.50

(c) 10

(d) 5

(e) 1.25

26.7   Suppose that the demand curve for mineral water is given by $p = 60 - 8q$ where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor who buys from a monopolistic producer, who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle. Given his marginal cost of c per unit, the distributor chooses an output to maximize his own profits. Knowing that this is what the distributor will do, the producer sets his price c so as to maximize his revenue. The price paid by consumers under this arrangement is:

(a) 45

(b) 7.50

(c) 30

(d) 15

(e) 3.75

26.8   The labor supply curve faced by a large firm in a small city is given by $w = 40 + 0.05L$ where L is the number of units of labor per week hired by the large firm and w is the weekly wage rate that it pays. If the firm is currently hiring 1000 units of labor per week, then the marginal cost of a unit of labor to the firm is:

(a) equal to the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 100.

(d) equals the wage rate plus 50.

(e) equals the wage rate plus 150.

Topic: Factor Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

26.9   The labor supply curve faced by a large firm in a small city is given by $w = 60 + 0.09L$ where L is the number of units of labor per week hired by the large firm and w is the weekly wage rate that it pays. If the firm is currently hiring 1000 units of labor per week, then the marginal cost of a unit of labor to the firm is:

(a) equal to the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 180.

(d) equals the wage rate plus 90.

(e) equals the wage rate plus 270.

Topic: Factor Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.10

Rabelaisian Restaurants has a monopoly in the town of Upper Glutton. Its production function is $Q = 10L$ where L is the amount of labor it uses and Q is the number of meals produced. In order to hire L units of labor, Rabelaisian Restaurants must pay a wage of $20 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by
$P = 50 - Q/1000$. The profit maximizing output for
Rabelasian Restaurants is:

(a) 12,000.

(b) 24,000.

(c) 3,000.

(d) 2,000.

(e) 1,500.

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% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.11

Rabelaisian Restaurants has a monopoly in the town of Upper Glutton. Its production function is $Q = 40L$ where L is the amount of labor it uses and Q is the number of meals produced. In order to hire L units of labor, Rabelaisian Restaurants must pay a wage of $120 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by
$P = 20 - Q/1000$. The profit maximizing output for
Rabelasian Restaurants is:

(a) 8,000.

(b) 16,000.

(c) 2,000.

(d) 500.

(e) 1,000.

26.1   This comes from an actual newspaper story. "The average price of a home in W. county rose more than 12% last year...but the number of sales fell nearly 15%. 'It's the old law of supply and demand', said a spokesman for the Board of Realtors. 'The number of sales is down because there's a higher demand for properties but there isn't a corresponding number to sell.'" a) What does the "old law of supply and demand" predict would happen to price and quantity if the demand curve shifts outward and the supply curve does not change? *b*) Draw a diagram to illustrate the case of a shift in demand and or supply curves that is consistent with the observed change in prices and quantities.

Answer: a)The price would rise and the quantity would rise. Even if the supply were very inelastic, the number of sales would not fall if the supply curve did not shift. *b*) One simple case would be a leftward shift in the supply curve and no change in the demand curve.

Chapter 27

Topic: Oligopoly
% Correct Responses: 72
Correct Answer: False

Difficulty: 1
Discrimination Index: 31

27.1   In Cournot equilibrium each firm chooses the quantity that maximizes its own profits assuming that the firm's rival will continue to sell at the same price as before.

Topic: Oligopoly
% Correct Responses: 61
Correct Answer: False

Difficulty: 1
Discrimination Index: 14

27.2   In Bertrand competition between two firms, each firm believes that if it changes its output, the rival firm will change its output by the same amount.

Topic: Oligopoly
% Correct Responses: 96
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

27.3   Suppose that the demand curve for an industry's output is a downward sloping straight line and there is constant marginal cost. Then the larger the number of identical firms producing in Cournot equilibrium, the lower will be the price.

Topic: Oligopoly
% Correct Responses: 96
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

27.4   A Stackelberg leader chooses his actions on the assumption that his rival will adjust to the leader's actions in such a way as to maximize the rival's profits.

Topic: Oligopoly
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

27.5   Conjectural variation refers to the fact that in a single market there is variation among firms in their estimates of the demand function in future periods.

Topic: Oligopoly

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: True

27.6 A duopoly in which two identical firms are engaged in Bertrand competition will not distort prices from their competitive levels.

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 92

Discrimination Index: 21

Correct Answer: True

27.7 A Stackelberg leader will necessarily make at least as much profit as he would if he acted as a Cournot oligopolist.

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 37

Discrimination Index: 22

Correct Answer: False

27.8 In the Cournot model, each firm chooses its actions on the assumption that its rivals will react by changing their quantities in such a way as to maximize their own profits.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 54

Discrimination Index: 10

Correct Answer: True

27.9 In the Bertrand model of duopoly, each firm sets its price, believing that the other's price will not change. When both firms have identical production functions and produce with constant returns to scale, the Bertrand equilibrium price is equal to marginal cost.

Topic: Oligopoly
% Correct Responses: 3
Correct Answer: D

Difficulty: 3
Discrimination Index: 3

27.1   An industry has two firms each of which produces output at a constant unit cost of $10 per unit. The demand function for the industry is $q = 1,000,000/p$. The Cournot equilibrium price for this industry is:

(a) 5.

(b) 10.

(c) 15.

(d) 20.

(e) 25.

Topic: Oligopoly
% Correct Responses: 21
Correct Answer: C

Difficulty: 2
Discrimination Index: 29

27.2   An industry has two firms. The inverse demand function for this industry is $p = 320 - 4q$. Both firms produce at a constant unit cost of $20 per unit. What is the Cournot equilibrium price for this industry?

(a) 20

(b) 22

(c) 120

(d) 60

(e) None of the above.

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 21

Discrimination Index: 29

Correct Answer: C

27.3 An industry has two firms. The inverse demand function for this industry is $p = 92 - 2q$. Both firms produce at a constant unit cost of \$32 per unit. What is the Cournot equilibrium price for this industry?

(a) 32

(b) 34

(c) 52

(d) 26

(e) None of the above.

Topic: Oligopoly

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

27.4 One unit of zinc and one unit of copper are needed to produce a unit of brass. The world's supply of zinc and the world's supply of copper are owned by two different monopolists. For simplicity assume that it costs nothing to mine zinc and copper, that no other inputs are needed to produce brass and that the brass industry operates competitively. Then the price of a unit of brass equals the cost of the inputs used to make it. The demand function for brass is $q = 900 - 2p$ where p is the price of brass. The zinc and copper monopolists each set a price, believing that the other monopolist will not change his price. What is the equilibrium price of brass?

(a) 100

(b) 200

(c) 300

(d) 50

(e) 25

Topic: Oligopoly   Difficulty: 2
% Correct Responses: 57   Discrimination Index: 33
Correct Answer: C

27.5   A duopoly faces the inverse demand curve $p = 160 - 2q$. Both firms in the industry have constant costs of \$10 per unit of output. In a Cournot equilibrium how much output will each duopolist sell?

(a) 75

(b) 54

(c) 25

(d) 35

(e) 48

Topic: Oligopoly   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

27.6   Suppose that the price elasticity of demand for airline flights betweem two cities is constant and equal to -1.5. If 4 airlines with equal costs are in Cournot equilibrium for this industry, then the ratio of price to marginal cost in the industry is:

(a) 8/7.

(b) 9/8.

(c) 7/6.

(d) 3/2.

(e) None of the above.

Topic: Oligopoly
% Correct Responses: 66
Correct Answer: A

Difficulty: 2
Discrimination Index: 44

27.7 A city has two major league baseball teams, A and B. The number of tickets sold by either team depends on the price of the team's own tickets and the price of the other team's ticket. If team A charges P_a for its tickets and team B charges P_b for its tickets, then ticket sales, measured in hundreds of thousands per season are $20 - 2P_a + P_b$ for team A and $10 + P_a - 2P_b$ for team B. The marginal cost of an extra spectator is zero for both teams. Each team believes the other's price is independent of its own choice of price and each team sets its own price so as to maximize its revenue. What price do they charge per ticket?

(a) Team A charges 6 and team B charges 4.

(b) Team A charges 8 and team B charges 3.

(c) Team A charges 7 and team B charges 6.

(d) Team A charges 6 and team B charges 8.

(e) None of the above.

Topic: Oligopoly
% Correct Responses: 66
Correct Answer: A

Difficulty: 2
Discrimination Index: 44

27.8 A city has two major league baseball teams, A and B. The number of tickets sold by either team depends on the price of the team's own tickets and the price of the other team's ticket. If team A charges P_a for its tickets and team B charges P_b for its tickets, then ticket sales, measured in hundreds of thousands per season are $21 - 2P_a + P_b$ for team A and $6 + P_a - 2P_b$ for team B. The marginal cost of an extra spectator is zero for both teams. Each team believes the other's price is independent of its own choice of price and each team sets its own price so as to maximize its revenue. What price do they charge per ticket?

(a) Team A charges 6 and team B charges 3.

(b) Team A charges 8 and team B charges 2.

(c) Team A charges 7 and team B charges 5.

(d) Team A charges 6 and team B charges 6.

(e) None of the above.

27.9   A city has two newspapers. Demand for either paper depends on its own price and the price of its rival. Demand functions for papers A and B respectively, measured in tens of thousands of subscriptions, are $21 - 2P_a + P_b$ and $21 + P_a - 2P_b$. The marginal cost of printing and distributing an extra paper just equals the extra advertising revenue one gets from another reader, so each paper treats marginal costs as zero. Each paper maximizes its revenue assuming that the other's price is independent of its own choice of price. If the papers enter a joint operating agreement where they set prices to maximize total revenue, by how much will newspaper prices rise?

(a) 3

(b) 2

(c) 0

(d) 3.5

(e) 2.5

27.10   There are two major producers of corncob pipes in the world, both located in Herman, Missouri. Suppose that the inverse demand function for corncob pipes is described by $p = 120 - 4q$ where q is total industry output and suppose that marginal costs are zero. What is the Cournot reaction function of firm 1 to the output, q_2, of firm 2?

(a) $120 - 4q_2^2$

(b) $120 - 4q_2$

(c) $15 - .5q_2$

(d) $30 - 4q_2$

(e) $124 - 8q_2$

Topic: Oligopoly

Difficulty: 1

% Correct Responses: 77

Discrimination Index: 35

Correct Answer: C

27.11   There are two major producers of corncob pipes in the world, both located in Herman, Missouri. Suppose that the inverse demand function for corncob pipes is described by $p = 180 - 3q$ where q is total industry output and suppose that marginal costs are zero. What is the Cournot reaction function of firm 1 to the output, q_2, of firm 2?

(a) $180 - 3q_2^2$

(b) $180 - 3q_2$

(c) $30 - .5q_2$

(d) $60 - 3q_2$

(e) $183 - 6q_2$

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 61

Discrimination Index: 52

Correct Answer: D

27.12   An industry has two firms producing at a constant unit cost of \$10 per unit. The inverse demand curve for the industry is $p = 110 - .5q$. Suppose that firm 1 is a Stackleberg leader in choosing its quantity (i.e. firm 1 chooses it's quantity first, knowing that firm 2 will observe firm $1's$ quantity when it chooses its own output.) How much output will firm 2, the follower, produce?

(a) 40

(b) 15

(c) 20

(d) 50

(e) 30

CHAPTER 27   OligopolyTopic: Oligopoly   Difficulty: 3
% Correct Responses: 28   Discrimination Index: 32
Correct Answer: C

27.13   The cartel of copper exporting countries is called COPEC. As part of an international marketing agreement, the United States has agreed to buy all the copper that COPEC wants to sell the U.S. at a constant price of $100 per ton. COPEC also sells copper in Europe at a price of $150 per ton. COPEC acts just like a monopolist. If COPEC finds it profitable to sell in the U.S. at $100 per ton and simultaneously to sell in Europe for $150 a ton, what is the price elasticity of demand of COPEC's copper in the European market? (Hint: What is COPEC's marginal revenue in the U.S. market?)

(a) -1

(b) -2

(c) -3

(d) $-1/3$

(e) $-2/3$

Topic: Oligopoly   Difficulty: 2
% Correct Responses: 61   Discrimination Index: 17
Correct Answer: E

27.14   Two firms decide to form a cartel and collude in a way that maximizes industry profits. Each firm has zero production costs and each firm is given a positive output quota by the cartel. Which of the following statements is NOT true?

(a) Each firm would want to produce more than its quota if it knew that the other would continue to produce at its quota.

(b) The price elasticity of demand will be -1 at the output level chosen.

(c) Output will be lower than if the firms behaved as Cournot firms.

(d) Output will be lower than if the firms behaved as competitors.

(e) All of the other statements are false.

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 49

Discrimination Index: 42

Correct Answer: D

27.15 The inverse demand function for fuzzy dice is $p = 20 - q$. There are constant returns to scale in this industry with unit costs of $8. Which of the following statements is completely true?

(a) Monopoly output is 6. Cournot duopoly total output is 8. A Stackelberg leader's output is 8.

(b) Monopoly output is 8. Cournot duopoly total output is 8. A Stackelberg leader's output is 8.

(c) Monopoly output is 6. Cournot duopoly total output is 6. A Stackelberg follower's output is 3.

(d) Monopoly output is 6. Cournot duopoly total output is 8. A Stackelberg follower's output is 3.

(e) Monopoly output is 6. Cournot duopoly total output is 8. A Stackelberg follower's output is 4.

Topic: Oligopoly

Difficulty: 2

% Correct Responses: 69

Discrimination Index: 80

Correct Answer: C

27.16 An industry has two firms. Firm $1's$ cost function is $c(y) = 2y + 500$ and firm $2's$ cost function is $c(y) = 2y + 400$. The demand curve for the output of this industry is a downward-sloping straight line. In a Cournot equilibrium, where both firms produce positive amounts of output:

(a) the firm with lower fixed costs produces more.

(b) the firm with higher fixed costs produces more.

(c) both firms produce the same amount of output.

(d) there is less output than there would be if the firms colluded to maximize joint profits.

(e) firm 1 always operates in the region where the demand curve is inelastic.

Topic: Oligopoly

Difficulty: 3

% Correct Responses: 26

Discrimination Index: 0

Correct Answer: A

27.17 The price elasticity of demand for melocotones is constant and equal to -2. The melocotone market is controlled by two Cournot duopolists who have different cost functions. One of the duopolists has a constant marginal cost of $980 per ton and he produces 60% of the total number of melocotones sold. The equilibrium price of a ton of melocotones must be:

(a) 1,400.

(b) 700.

(c) 980.

(d) 2,800.

(e) 2,100.

Topic: Oligopoly   Difficulty: 3
% Correct Responses: 26   Discrimination Index: 0
Correct Answer: A

27.18   The price elasticity of demand for melocotones is constant and equal to -3. The melocotone market is controlled by two Cournot duopolists who have different cost functions. One of the duopolists has a constant marginal cost of \$720 per ton and he produces 60% of the total number of melocotones sold. The equilibrium price of a ton of melocotones must be:

(a) 900.

(b) 450.

(c) 720.

(d) 1,800.

(e) 1,350.

Topic: Oligopoly   Difficulty: 3
% Correct Responses: 62   Discrimination Index: 10
Correct Answer: A

27.19   The demand for y is given by $y = 256/p^2$. Only two firms produce y. They have identical costs $c(y) = y^2$. If they agree to collude and maximize their joint profits, how much output will each firm produce?

(a) 2

(b) 5

(c) 10

(d) 12

(e) 16

Topic: Oligopoly   Difficulty: 3
% Correct Responses: 25   Discrimination Index: 21
Correct Answer: E

27.20   A certain type of mushroom used to be produced on 50 farms, each of which had a cost function $c(y) = y^2 + 1$ where $y > 0$ and $c(0) = 0$. The firms operated as competitors. The demand curve for this kind of mushroom is given by $D(p) = 52 - p$. Marauding deviant Ninja turtles invaded many of the mushroom farms leaving absolute devastation and loathsome slime in their wake. (The turtles had no effect on the cost functions of farms that were not invaded.)

(a) If all of the farms but one were invaded and that farm became a monopolist, total output of mushrooms would fall to half of the preinvasion output.

(b) If all of the farms but one were invaded and that farm became a monopolist, total output of mushrooms would fall to $1/50th$ of the preinvasion output.

(c) If all of the farms but two were invaded and the two undamaged farms became Cournot duopolists, total output of mushrooms would be $2/3$ of the preinvasion output.

(d) If half of the farms were invaded and the industry remained competitive, industry output would fall to half of the preinvasion output.

(e) If half of the farms were invaded and the industry remained compeitive, industry output would fall, but would be greater than half of the preinvasion output.

Topic: Oligopoly   Difficulty: 2
% Correct Responses: 69   Discrimination Index: 40
Correct Answer: C

27.21   A duopoly faces the demand curve $D(p) = 30 - .5p$. Both firms in the industry have a total cost function given by $C(q) = 4q$. Suppose that Firm 1 is a Stackelberg leader in choosing its quantity first. Firm $1's$ profit function can be written as:

(a) $q_1 = 14 - .5q_2$.

(b) $q_2 = 14 - .5q_1$.

(c) $28q_1 - q_1^2$.

(d) $56q_1 - q_1^2$.

(e) $60q - q^2$.

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 63   Discrimination Index: 67
Correct Answer: A

27.22   A duopoly faces the inverse demand curve $p = 160 - 2q$. Firm $1's$ total cost function is given by $C_1(q_1) = 8q_1$ and Firm $2's$ total cost function is given by $C_2(q_2) = 10q_2$. In a Cournot equilibrium:

(a) the firm with the lower marginal cost produces more.

(b) both firms will produce the same amount.

(c) the firm with the higher marginal cost produces more to cover the higher costs.

(d) the reaction function for both firms is the same since both firms have a constant marginal cost.

(e) more than one of the above is correct.

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 63   Discrimination Index: 67
Correct Answer: B

27.23   Consider a market with one large firm and many small firms. The supply function of all of the small firms together is given by $S(p) = 200 + p$, the market demand curve is given by $D(p) = 400 - p$, and the cost function for the large firm is $C(y) = 20y$. The residual demand curve for the large firm (where D_L is large firm's demand and y_L is large firm's output) is given by:

(a) $D_L(p) = 400 - 21y_L$.

(b) $D_L(p) = 200 - 2p$.

(c) $D_L(p) = 600 - 2p$.

(d) $D_L(y_L) = 200 - 2p - 20y_L$.

(e) $D_L(y_L) = 200 + p + 20y_L$.

27.24 The duopolists Carl and Simon face a demand function for pumpkins of $Q = 5,600 - 800P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of \$1 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $2,400 - Q_s/2$.

(b) $5,600 - 800Q_s$.

(c) $5,600 - 1,600Q_s$.

(d) $1,200 - Q_s/2$.

(e) $3,600 - Q_s$.

27.25 The duopolists Carl and Simon face a demand function for pumpkins of $Q = 3,600 - 400P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of \$1 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $1,600 - Q_s/2$.

(b) $3,600 - 400Q_s$.

(c) $3,600 - 800Q_s$.

(d) $800 - Q_s/2$.

(e) $2,400 - Q_s$.

27.26   Supose that the inverse demand for bean sprouts is given by $P(Y) = 520 - 2Y$ and the total cost of producing Y units for any firm is $TC(Y) = 40Y$. If the industry consists of two Cournot duopolists, then in equilibrium each firm's production is:

(a) 120 units.

(b) 60 units.

(c) 40 units.

(d) 80 units.

(e) 65 units.

27.27   Supose that the inverse demand for bean sprouts is given by $P(Y) = 390 - 2Y$ and the total cost of producing Y units for any firm is $TC(Y) = 30Y$. If the industry consists of two Cournot duopolists, then in equilibrium each firm's production is:

(a) 90 units.

(b) 45 units.

(c) 30 units.

(d) 60 units.

(e) 48.75 units.

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 72   Discrimination Index: 56
Correct Answer: A

27.28   Suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$420 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of $15 and Grubb has marginal costs of $15. How much is Grinch's output in equilibrium?

(a) 675

(b) 1,350

(c) 337.50

(d) 1,012.50

(e) 2,025

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 72   Discrimination Index: 56
Correct Answer: A

27.29   Suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$600 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of $60 and Grubb has marginal costs of $75. How much is Grinch's output in equilibrium?

(a) 925

(b) 1,850

(c) 462.50

(d) 1,387.50

(e) 2,775

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.30

Suppose that two airlines are Cournot duopolists serving the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 180 - 2p$ (so $p = 90 - Q/2$). Total costs of running a flight on this route are $200 + 30q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of:

(a) 600

(b) 100

(c) 180

(d) 1,200

(e) 2,000

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.31

Suppose that two airlines are Cournot duopolists serving the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 140 - 2p$ (so $p = 70 - Q/2$). Total costs of running a flight on this route are $100 + 40q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of:

(a) 100

(b) 50

(c) 140

(d) 200

(e) 1,000

Topic: Oligopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

27.32 Suppose that the market demand curve for bean sprouts is given by
$P = 3,580 - 5Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader and a follower. Each firm has a constant marginal cost of $80 per unit of output. In equilibrium, total output by the two firms will be:

(a) 350.

(b) 175.

(c) 525.

(d) 700.

(e) 87.50.

Topic: Oligopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

27.33 Suppose that the market demand curve for bean sprouts is given by
$P = 3,520 - 5Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader and a follower. Each firm has a constant marginal cost of $20 per unit of output. In equilibrium, total output by the two firms will be:

(a) 350.

(b) 175.

(c) 525.

(d) 700.

(e) 87.50.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.34   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 1,000 - 2q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if:

(a) and only if each firm produces 100 units in its plant.

(b) they produce a total of 200 units, no matter which firm produces them.

(c) and only if they each produce a total of 250 units.

(d) they produce a total of 166.67 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.35   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 5,400 - 4q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if:

(a) and only if each firm produces 300 units in its plant.

(b) they produce a total of 600 units, no matter which firm produces them.

(c) and only if they each produce a total of 675 units.

(d) they produce a total of 450 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 55

Discrimination Index: 30

Correct Answer: D

27.36 A Stackleberg leader and follower each choose their outputs to maximize their own profits. Local property taxes which constitute a lump sum tax for each of them are reduced by $500 per year for the leader and by $200 a year for the follower. In consequence, the firms:

(a) both increase output, with the leader increasing output by more.

(b) both increase output, with the follower increasing output by more.

(c) increase output by equal amounts for each firm.

(d) leave their outputs unchanged.

(e) There is not enough information in the question to determine what the firms will do.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 40

Discrimination Index: 25

Correct Answer: B

27.37 An industry has two colluding firms, who act so as to maximize total profit in the industry and then split the profits equally. Firm 1 has cost function $c(y) = 8y$. Firm 2 has cost function $c(y) = y^2$. Each firm produces an integer number of units. Market demand is given by $Y(p) = 80 - p$.

(a) Firm 1 should produce 16 units and firm 2 should produce 16 units.

(b) Firm 1 should produce 32 units and firm 2 should produce 4 units.

(c) Each firm should produce 18 units.

(d) Firm 1 should produce 36 units and firm 2 should produce 2 units.

(e) None of the above.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 40

Discrimination Index: 25

Correct Answer: B

27.38 An industry has two colluding firms, who act so as to maximize total profit in the industry and then split the profits equally. Firm 1 has cost function $c(y) = 8y$. Firm 2 has cost function $c(y) = y^2$. Each firm produces an integer number of units. Market demand is given by $Y(p) = 48 - p$.

(a) Firm 1 should produce 8 units and firm 2 should produce 8 units.

(b) Firm 1 should produce 16 units and firm 2 should produce 4 units.

(c) Each firm should produce 10 units.

(d) Firm 1 should produce 20 units and firm 2 should produce 2 units.

(e) None of the above.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 63

Discrimination Index: 40

Correct Answer: C

27.39   An industry has two $firms --a$ Stackleberg leader and a follower. The price of the industry output is given by $P = 48 - Q$ where Q is the total output of the two firms. The follower has a marginal cost of 0. The leader has a marginal cost of 12. How much should the leader produce in order to maximize profits?

(a) 15

(b) 24

(c) 12

(d) 10

(e) None of the above.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 63

Discrimination Index: 40

Correct Answer: C

27.40   An industry has two $firms --a$ Stackleberg leader and a follower. The price of the industry output is given by $P = 24 - Q$ where Q is the total output of the two firms. The follower has a marginal cost of 0. The leader has a marginal cost of 6. How much should the leader produce in order to maximize profits?

(a) 9

(b) 12

(c) 6

(d) 4

(e) None of the above.

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.41 Roach Motors is the dominant used car dealer in a small midwestern city. After paying $50,000 for overhead, Roach Motors' cost per car is $500. There are 4 other small used car lots in this town, but since they are not large enough to purchase cars through the same discount sources as Roach, each firm faces the cost function $C = 5,000 + 600Q + 5Q^2$. The demand for used cars is $Q = 400 - P2/10$. Assuming Roach is aware of its competitors' costs, what price should Roach set for a used car?

(a) $783.33

(b) $816.67

(c) $600

(d) $641.67

(e) $1,016.67

Topic: Oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.42 Roach Motors is the dominant used car dealer in a small midwestern city. After paying $50,000 for overhead, Roach Motors' cost per car is $500. There are 5 other small used car lots in this town, but since they are not large enough to purchase cars through the same discount sources as Roach, each firm faces the cost function $C = 5,000 + 600Q + 5Q^2$. The demand for used cars is $Q = 200 - P1/10$. Assuming Roach is aware of its competitors' costs, what price should Roach set for a used car?

(a) $666.67

(b) $600

(c) $600

(d) $583.33

(e) $900

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

27.43

Roach Motors is the dominant used car dealer in a small midwestern city. After paying $50,000 for overhead, Roach Motors' cost per car is $500. There are 4 other small used car lots in this town, but since they are not large enough to purchase cars through the same discount sources as Roach, each firm faces the cost function $C = 5,000 + 700Q + 5Q^2$. The demand for used cars is $Q = 500 - P2/10$. Assuming Roach sets the market price so as to maximize its profit, how many cars will each of the follower firms supply?

(a) 12

(b) 20

(c) 27

(d) 17

(e) 15

Topic: Oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

27.44

Roach Motors is the dominant used car dealer in a small midwestern city. After paying $50,000 for overhead, Roach Motors' cost per car is $500. There are 4 other small used car lots in this town, but since they are not large enough to purchase cars through the same discount sources as Roach, each firm faces the cost function $C = 5,000 + 700Q + 5Q^2$. The demand for used cars is $Q = 500 - P2/10$. Assuming Roach sets the market price so as to maximize its profit, how many cars will each of the follower firms supply?

(a) 29

(b) 20

(c) 26

(d) 19

(e) 14

Topic: Oligopoly
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

27.45

North Bend currently has one McDonald's fast food franchise. Demand for hamburgers in North Bend is given by $Q = 200 - 40P$. Any McDonald's franchise has costs of $C = 80 + 2Q$ for producing Q hamburgers. If a second McDonald's franchise were to move into North Bend (and both behave as duopolists), the profit of the original McDonald's would

(a) fall from \$10 to \$ − 80.

(b) fall from \$210 to \$120.

(c) fall from \$90 to \$ − 80.

(d) fall from \$10 to \$ − 40.

(e) fall from \$90 to \$0.

Topic: Oligopoly
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

27.46

North Bend currently has one McDonald's fast food franchise. Demand for hamburgers in North Bend is given by $Q = 400 - 10P$. Any McDonald's franchise has costs of $C = 60 + 4Q$ for producing Q hamburgers. If a second McDonald's franchise were to move into North Bend (and both behave as duopolists), the profit of the original McDonald's would

(a) fall from \$3,180 to \$2,760.

(b) fall from \$3,960 to \$1,920.

(c) fall from \$3,240 to \$2,760.

(d) fall from \$3,180 to \$1,380.

(e) fall from \$3,240 to \$2,820.

Topic: Oligopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

27.47   Ann and Bruce each own a pizza store in Frostbite Falls, MN. Demand for pizza is given by $Q = 200 - 40P$. Being the only two pizza stores in Frostbite Falls, they attempt to profitably split the market without violating the Sherman Antitrust Act. Each has the cost function $C = 60 + 3Q$. If Ann and Bruce behave as duopolists each earns a profit of

(a) $0.

(b) $ - 42.22$.

(c) $35.56.

(d) $97.78.

(e) $40.

Topic: Oligopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

27.48   Ann and Bruce each own a pizza store in Frostbite Falls, MN. Demand for pizza is given by $Q = 300 - 40P$. Being the only two pizza stores in Frostbite Falls, they attempt to profitably split the market without violating the Sherman Antitrust Act. Each has the cost function $C = 60 + 4Q$. If Ann and Bruce behave as duopolists each earns a profit of

(a) $0.

(b) $ - 5.56$.

(c) $108.89.

(d) $241.11.

(e) $122.50.

Chapter 28

Game Theory

Topic: Game Theory
% Correct Responses: 76
Correct Answer: True

Difficulty: 2
Discrimination Index: 13

28.1   A situation where everyone is playing a dominant strategy must be a Nash equilibrium.

Topic: Game Theory
% Correct Responses: 87
Correct Answer: False

Difficulty: 2
Discrimination Index: 40

28.2   In a Nash equilibrium, everyone must be playing a dominant strategy.

Topic: Game Theory
% Correct Responses: 39
Correct Answer: False

Difficulty: 2
Discrimination Index: 14

28.3   In the prisoners' dilemma game, if each prisoner believed that the other prisoner would deny the crime, then both would deny the crime.

Topic: Game Theory
% Correct Responses: 56
Correct Answer: False

Difficulty: 1
Discrimination Index: 41

28.4   A general has the two possible pure strategies, sending all of his troops by land or all of his troops by sea. An example of a mixed strategy is where he sends 1/4 of his troops by land and 3/4 of his troops by sea.

Topic: Game Theory
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

28.5   While game theory predicts noncooperative behavior for a single play of prisoners' dilemma, it would predict cooperative tit-for-tat behavior if the same people play prisoners' dilemma together for, say, 20 rounds.

Topic: Game Theory   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 33
Correct Answer: False

28.6   A two-person game in which each person has access to only two possible strategies will have at most one Nash equilibrium.

Topic: Game Theory   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 13
Correct Answer: True

28.7   A dominant strategy equilibrium is a set of choices such that each player's choices are optimal regardless of what the other players choose.

Topic: Game Theory   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

28.8   In Nash equilibrium, each player is making an optimal choice for herself, given the choices of the other players.

Topic: Game Theory   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 2
Correct Answer: False

28.9   If a game does not have an equilibrium in pure strategies, then it will not have an equilibrium in mixed strategies either.

Topic: Game Theory   Difficulty: 2
% Correct Responses: 82   Discrimination Index: 15
Correct Answer: False

28.10   A game has two players and each has two strategies. The strategies are Be Nice and Be Mean. If both players play Be Nice, both get a payoff of 5. If both players play Be Mean, both get a payoff of -3. If one player plays Be Nice and the other plays Be Mean, the player who played Be Nice gets 0 and the player who played Be Mean gets 10. Playing Be Mean is a dominant strategy for both players.

Topic: Game Theory
% Correct Responses: 74
Correct Answer: C

Difficulty: 2
Discrimination Index: 57

28.1 A game has two players. Each player has two possible strategies. One strategy is called "cooperate", the other is called "defect". Each player writes on a piece of paper either a C for cooperate or a D for defect. If both players write C, they both get a payoff of \$100. If both players defect they each get a payoff of 0. If one player cooperates and the other player defects, the cooperating player gets a payoff of S and the defecting player gets a payoff of T. To defect will be a dominant strategy for both players if:

(a) $S + T > 100$

(b) $T > 2S$

(c) $S < 0$ and $T > 100$.

(d) $S < T$ and $T > 100$.

(e) S amd T are any positive numbers.

Topic: Game Theory
% Correct Responses: 89
Correct Answer: C

Difficulty: 1
Discrimination Index: 33

28.2 In the game matrix below, the first payoff in each pair goes to Player A who chooses the row, and the second payoff goes to Player B, who chooses the column. Let a, b, c, and d be positive constants. If Player A chooses bottom and Player B chooses right in a Nash equilibrium then we know that: !ta *game* 1.tab!

(a) $b > 1$ and $d < 1$.

(b) $c < 1$ and $b < 1$.

(c) $b < 1$ and $c < d$.

(d) $b < c$ and $d < 1$.

(e) $a < 1$ and $b < d$.

Topic: Game Theory

% Correct Responses: 36

Correct Answer: A

Difficulty: 2

Discrimination Index: 35

28.3 In the town of Torrelodones, each of the $N > 2$ inhabitants has \$100. They are told that they can all voluntarily contribute to a fund that will be evenly divided among all residents. If \$$F$ are contributed to the fund, the local K-Mart will match the private contributions so that the total amount to be divided is \$$2F$. That is, each resident will get back a payment of \$$2F/N$ when the fund is divided. If people in town care only about their own net incomes, in Nash equilibrium, how much will each person contribute to the fund?

(a) 0

(b) \$10

(c) \$20

(d) \$50

(e) \$100

Topic: Game Theory

% Correct Responses: 43

Correct Answer: C

Difficulty: 3

Discrimination Index: 35

28.4 Frank and Nancy met at a sorority sock-hop. They agreed to meet for a date at a local bar the next week. Regrettably, they were so fraught with passion that they forgot to agree on which bar would be the site of their rendezvous. Luckily, the town has only two bars, Rizotti's and the Oasis. Having discussed their tastes in bars at the sock-hop, both are aware that Frank prefers Rizotti's to the Oasis and Nancy prefer the Oasis to Rizottis. In fact, the payoffs are as follows. If both go to the Oasis, Nancy's utility is 3 and Frank's utility is 2. If both go to Rizotti's, Frank's utility is 3 and Nancy's utility is 2. If they don't both go to the same bar, both have a utility of 0.

(a) This game has no Nash equilibrium in pure strategies.

(b) This game has a dominant strategy equilibrium.

(c) There are two Nash equilibria in pure strategies and a Nash equilibrium in mixed strategies where the probability that Frank and Nancy go to the same bar is 12/25.

(d) This game has two Nash equilibria in pure strategies and a Nash equilbrium in mixed strategies where each person has a probability of 1/2 of going to each bar.

(e) This game has exactly one Nash equilibrium.

Topic: Game Theory
% Correct Responses: 28
Correct Answer: C

Difficulty: 2
Discrimination Index: 16

28.5   George and Sam have taken their fathers' cars out on a lonely road and are engaged in a game of "Chicken". George has his father's Mercedes and Sam has his father's rattly little Yugoslavian-built subcompact car. Each of the players can choose either to Swerve or to Not Swerve. If both choose Swerve, both get a payoff of zero. If one chooses Swerve and the other chooses Not Swerve, the one who chooses Not Swerve gets a payoff of 10 and the one who chooses Swerve gets zero. If both choose Not Swerve, the damage to George's car is fairly minor and he gets a payoff of -5, while for Sam the results are disastrous and he gets a payoff of -100.

(a) This game has a dominant strategy equilibrium in which George does not swerve and Sam swerves.

(b) This game has two pure strategy Nash equilibria and no mixed-strategy equilibrium.

(c) This game has three different Nash equilibria, two of which are pure strategy equilibria and one of which is a mixed strategy equilibrium in which George is more likely to swerve than Sam is.

(d) The one and only Nash equilibrium in this game is where George does not swerve and Sam swerves.

(e) This game has two pure strategy equilibria and a mixed strategy equilibrium in which Sam randomizes his strategy and George chooses Not Swerve with certainty.

Topic: Game Theory
% Correct Responses: 75
Correct Answer: E

Difficulty: 0
Discrimination Index: 0

28.6   Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 2. If both pigs press the button then Big Pig gets 7 and Little Pig gets 3. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 6 and Little Pig gets 1. In Nash equilibrium,

(a) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 6.

(b) Little Pig will get a payoff of 3 and Big Pig will get a payoff of 7.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 0
Correct Answer: E

28.7   Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the
trough. If both pigs choose Wait, both get 1. If both pigs press the button then Big Pig gets 8 and
Little Pig gets 2. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig
gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big
Pig gets 4 and Little Pig gets 3. In Nash equilibrium,

(*a*) Little Pig will get a payoff of 3 and Big Pig will get a payoff of 4.

(*b*) Little Pig will get a payoff of 2 and Big Pig will get a payoff of 8.

(*c*) Both pigs will wait at the trough.

(*d*) Little pig will get a payoff of zero.

(*e*) The pigs must be using mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.8   Two players are engaged in a game of "Chicken". There are two possible strategies. Swerve
and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero,
regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of
12 if the other player swerves and a payoff of -12 if the other player also chooses to Drive Straight.
This game has two pure strategy equilibria and:

(*a*) a mixed strategy equilibrium in which each player swerves with probability 0.50 and drives straight with
probability 0.50.

(*b*) two mixed strategies in which players alternate between swerving and driving straight.

(*c*) a mixed strategy equilibrium in which one player swerves with probability 0.50 and the other swerves
with probability 0.50.

(*d*) a mixed strategy in which each player swerves with probability 0.25 and drives straight with probability
0.75.

(*e*) no mixed strategies.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

28.9 Two players are engaged in a game of "Chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 9 if the other player swerves and a payoff of -36 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and:

(a) a mixed strategy equilibrium in which each player swerves with probability 0.80 and drives straight with probability 0.20.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.80 and the other swerves with probability 0.20.

(d) a mixed strategy in which each player swerves with probability 0.40 and drives straight with probability 0.60.

(e) no mixed strategies.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

28.10 A famous Big Ten football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate forces on the left side or the right side. If the opponent concentrates on the wrong side, his offense is sure to gain at least 5 yards. If the defense defended the left side and the offense ran left, it gain only 1 yard. If the opponent defended the right side when the offense ran right, the offense would still gain at least 5 yards with probability 0.70. It is the last play of the game and the famous coach's team is on offense. If it makes 5 yards or more it wins, if not it loses. Both sides choose Nash equilibrium strategies. In equilibrium the offense:

(a) is sure to run to the right side.

(b) will run to the right side with probability 0.77.

(c) will run to the right side with probability 0.87.

(d) will run to the two sides with equal probability.

(e) will run to the right side with probability 0.70.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

28.11   A famous Big Ten football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate forces on the left side or the right side. If the opponent concentrates on the wrong side, his offense is sure to gain at least 5 yards. If the defense defended the left side and the offense ran left, it gain only 1 yard. If the opponent defended the right side when the offense ran right, the offense would still gain at least 5 yards with probability 0.30. It is the last play of the game and the famous coach's team is on offense. If it makes 5 yards or more it wins, if not it loses. Both sides choose Nash equilibrium strategies. In equilibrium the offense:

(a) is sure to run to the right side.

(b) will run to the right side with probability 0.59.

(c) will run to the right side with probability 0.74.

(d) will run to the two sides with equal probability.

(e) will run to the right side with probability 0.70.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 74   Discrimination Index: 56
Correct Answer: A

28.12   Suppose that in a Hawk-Dove game similar to the one discussed in your workbook, the payoff to each player is -4 if both play hawk. If both play dove, the payoff to each player is 1 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 4 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays hawk is:

(a) 0.43.

(b) 0.21.

(c) 0.11.

(d) 0.71.

(e) 1.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 74

Discrimination Index: 56

Correct Answer: A

28.13 Suppose that in a Hawk-Dove game similar to the one discussed in your workbook, the payoff to each player is -9 if both play hawk. If both play dove, the payoff to each player is 5 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 7 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays hawk is:

(a) 0.18.

(b) 0.09.

(c) 0.05.

(d) 0.59.

(e) 1.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

28.14

If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $77 + 0.30X$. What is a long run equilibrium attendance for this club?

(a) 77

(b) 256.67

(c) 154

(d) 110

(e) 33

28.15

If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $21 + 0.70X$. What is a long run equilibrium attendance for this club?

(a) 21

(b) 30

(c) 42

(d) 70

(e) 49

28.16   Professor Binmore has a monopoly in the market for undergraduate game theory textbooks. The time discounted value of Professor Binmore's future earnings is \$2,000. Professor Ditt is considering writing a book to compete with Professor Binmore's book. With two books amicably splitting the market, the time discounted value of each professor's future earnings would be \$200. If there is full information (each professor knows the profits of the other), under what conditions could Professor Binmore deter the entry of Professor Ditt into his market? (More than one answer may be correct. Full credit will be given only if **all correct choices are selected.**)

(a) Professor Binmore threatens to cut his price so that Professor Ditt would loose \$200. In so doing, Professor Binmore would loose \$20 over time.

(b) Professor Binmore threatens to cut his price so that Professor Ditt would loose \$20. In so doing, Professor Binmore would just break even over time.

(c) Professor Binmore threatens to cut his price and attack the credibility of Professor Ditt's book so that Professor Ditt would loose \$2. In so doing, Professor Binmore would still make \$190 over time.

(d) Professor Binmore threatens to cut his price and attack the credibility of Professor Ditt's book so that Professor Ditt would only make \$2. In so doing, Professor Binmore would still make \$100 over time.

(e) None of the above.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

28.17   Professor Binmore has a monopoly in the market for undergraduate game theory textbooks. The time discounted value of Professor Binmore's future earnings is $1,000. Professor Ditt is considering writing a book to compete with Professor Binmore's book. With two books amicably splitting the market, the time discounted value of each professor's future earnings would be $100. If there is full information (each professor knows the profits of the other), under what conditions could Professor Binmore deter the entry of Professor Ditt into his market? (More than one answer may be correct. Full credit will be given only if **all correct choices are selected.)**

(a) Professor Binmore threatens to cut his price so that Professor Ditt would loose $200. In so doing, Professor Binmore would loose $20 over time.

(b) Professor Binmore threatens to cut his price so that Professor Ditt would loose $20. In so doing, Professor Binmore would just break even over time.

(c) Professor Binmore threatens to cut his price and attack the credibility of Professor Ditt's book so that Professor Ditt would loose $2. In so doing, Professor Binmore would still make $90 over time.

(d) Professor Binmore threatens to cut his price and attack the credibility of Professor Ditt's book so that Professor Ditt would only make $2. In so doing, Professor Binmore would still make $50 over time.

(e) None of the above.

28.1   The coach of the offensive football team has two options on the next play. He can run the ball or he can pass. His rival can defend either against the run or against the pass. Suppose that the offense passes. Then if the defense defends against the pass, it will make zero yards and if the defense defends against the run, it will make 25 yards. Suppose that the offense runs. If the defense defends against the pass, the offense will make 10 yards and if the defense defends against a run, the offense will gain 2 yards. a) Write down a payoff matrix for this game. b) Is there a Nash equilibrium in pure strategies for this game? If so, what is it? If not, demonstrate that there is none.

Answer: This game does not have a Nash equilibrium in pure strategies. The best response to a pass (run) is a defense against the pass (run). But the best response to a defense against the pass (run) is to run (pass).

Chapter 29

True-False   Exchange

Topic: Exchange   Difficulty: 1
% Correct Responses: 62   Discrimination Index: 5
Correct Answer: False

29.1   Partial equilibrium analysis concerns only supply or only demand while general equilibrium analysis deals with supply and demand at the same time.

Topic: Exchange   Difficulty: 1
% Correct Responses: 52   Discrimination Index: 31
Correct Answer: True

29.2   A pure exchange economy is an economy where goods are traded but there is no production.

Topic: Exchange   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

29.3   In general equilibrium analysis, an allocation is a feasible allocation if every consumer is consuming a bundle that costs no more than his or her income.

Topic: Exchange   Difficulty: 2
% Correct Responses: 53   Discrimination Index: 31
Correct Answer: True

29.4   From Walras' law it follows that in a market with two goods, if demand equals supply in one market, then demand must equal supply in the other market.

Topic: Exchange   Difficulty: 1
% Correct Responses: 89   Discrimination Index: 14
Correct Answer: True

29.5   If the assumptions of the first theorem of welfare economics apply, and if the economy is in a competitive equilibrium, then any reallocation that benefits someone must harm someone else.

Topic: Exchange   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 0
Correct Answer: True

29.6   If there are consumption externalities, then a competitive equilibrium is not necessarily Pareto optimal.

Topic: Exchange   Difficulty: 1
% Correct Responses: 88   Discrimination Index: 0
Correct Answer: True

29.7   A competitive equilibrium allocation must be a feasible allocation.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

29.8   The second welfare theorem states that if preferences are convex, then any Pareto optimal allocation could be achieved as a competitive equilibrium after some reallocation of initial endowments.

Topic: Exchange   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

29.9   In a competitive pure exchange economy, if the total value of excess demand for all types of food is zero, then the total value of excess demand for all nonfood commodities must be zero.

Topic: Exchange   Difficulty: 1
% Correct Responses: 84   Discrimination Index: 18
Correct Answer: True

29.10   Every allocation on the contract curve is Pareto optimal.

Topic: Exchange   Difficulty: 2
% Correct Responses: 75   Discrimination Index: 10
Correct Answer: True

29.11   In a pure exchange economy with two goods, if there is a competitive equilibrium with prices $p_1 = 12$, $p_2 = 27$, then there must also be a competitive equilibrium with prices $p_1 = 24$, $p_2 = 54$.

Topic: Exchange

% Correct Responses: 0

Correct Answer: True

Difficulty: 2

Discrimination Index: 0

29.12 If demand varies continuously with price, then even if there are thousands of goods there will be at least one set of prices such that demand equals supply in every market.

Topic: Exchange

% Correct Responses: 43

Correct Answer: True

Difficulty: 3

Discrimination Index: 23

29.13 If allocation x is a competitive equilibrium at prices p and if everybody likes his bundle in allocation y better than his bundle in allocation x, then the total value of allocation y at prices p exceeds the total value of allocation x at prices p.

Topic: Exchange

% Correct Responses: 58

Correct Answer: True

Difficulty: 2

Discrimination Index: 16

29.14 If the initial endowment is on the contract curve, then there must always be a competitive equilibrium in which no trade takes place.

Topic: Exchange

% Correct Responses: 57

Correct Answer: True

Difficulty: 2

Discrimination Index: 40

29.15 Jack Spratt's utility function is $U(F, L) = L$. His wife's utility function is $U(F, L) = F$. If Jack's initial endowment is 70 units of F and 35 units of L and if Jack's wife's initial endowment is 42 units of F and 70 units of L, then in an Edgeworth box for Jack and his wife, an allocation of F and L will be Pareto optimal only if it is at a corner of the box.

Topic: Exchange

% Correct Responses: 57

Correct Answer: True

Difficulty: 2

Discrimination Index: 40

29.16 Jack Spratt's utility function is $U(F, L) = L$. His wife's utility function is $U(F, L) = F$. If Jack's initial endowment is 50 units of F and 25 units of L and if Jack's wife's initial endowment is 30 units of F and 50 units of L, then in an Edgeworth box for Jack and his wife, an allocation of F and L will be Pareto optimal only if it is at a corner of the box.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

29.17   If two people have identical Cobb-Douglas utility functions, then in every Pareto optimal allocation, they must consume all goods in the same proportions as each other.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

29.18   If two people have identical homothetic preferences and if their indifference curves have diminishing marginal rate of substitution, then in an Edgeworth box, the locus of Pareto optimal allocations between them is a diagonal straight line.

Topic: Exchange   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

29.19   In a model with two consumers, two goods, and no production, the contract curve must be a line going from one consumer's origin to the other consumer's origin.

Topic: Exchange   Difficulty: 2
% Correct Responses: 40   Discrimination Index: 20
Correct Answer: False

29.20   In a competitive pure exchange economy, if the initial endowment is on the diagonal line between the two origins, then, according to the first welfare theorem, there must always be a competitive equilibrium in which no trade takes place.

Topic: Exchange   Difficulty: 2
% Correct Responses: 12   Discrimination Index: 8
Correct Answer: E

29.1   In a pure exchange economy with two persons and two goods, one person always prefers more to less of both goods and one person likes one of the goods and hates the other so much that she would have to be paid to consume it. Both are initially endowed with positive amounts of both goods. The competitive equilibrium price of the good that one person hates must be:

(a) negative.

(b) smaller than the price of the good both people like.

(c) less than 1.

(d) could be positive or negative, depending on details of tastes and technology.

(e) positive.

Topic: Exchange   Difficulty: 2
% Correct Responses: 65   Discrimination Index: 35
Correct Answer: A

29.2   If an allocation is Pareto optimal and if indifference curves between the two goods have no kinks, then it must be that:

(a) two consumers who consume both goods must have the same MRS between them but consumers may consume the goods in different ratios.

(b) two consumers with the same income who consume both goods must have the same MRS, but if their incomes differ their MRS's may differ.

(c) any two consumers who consume both goods must consume them in the same ratio.

(d) for any two consumers who consume both goods, neither will prefer the other consumer's bundle to his own.

(e) all consumers receive the bundle that they prefer to any other bundle the economy could produce for them.

Topic: Exchange

Difficulty: 2

% Correct Responses: 55

Discrimination Index: 35

Correct Answer: E

29.3   According to the First Theorem of Welfare Economics:

(a) Every competitive equilibrium is fair.

(b) If the economy is in a competitive equilibrium, there is no way to make anyone better off.

(c) A competitive equilibrium always exists.

(d) At a Pareto optimum, all consumers must be equally wealthy.

(e) None of the above.

Topic: Exchange

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 47

Correct Answer: A

29.4   A small economy has only two consumers, Ben and Penelope. Ben's utility function is $U(x, y) = x + 84y^{1/2}$. Penelope's utility function is $U(x, y) = x + 7y$. At a Pareto optimal allocation in which both individuals consume some of each good, how much y does Ben consume?

(a) 36

(b) 6.50

(c) 12

(d) 13

(e) We can't tell without knowing the initial endowments.

Topic: Exchange

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 47

Correct Answer: A

29.5   A small economy has only two consumers, Leonard and Katerina. Leonard's utility function is $U(x, y) = x + 144y^{1/2}$. Katerina's utility function is $U(x, y) = x + 6y$. At a Pareto optimal allocation in which both individuals consume some of each good, how much y does Leonard consume?

(a) 144

(b) 9

(c) 24

(d) 18

(e) We can't tell without knowing the initial endowments.

Topic: Exchange

Difficulty: 2

% Correct Responses: 59

Discrimination Index: 37

Correct Answer: C

29.6 Eduardo and Francisca participate in an economy that is in competitive equilibrium. Although they are unacquainted with each other, both purchase strawberries and champagne. Eduardo's utility function is $U(s, c) = 2s + c$ where s is the number of boxes of strawberries he consumes per month and c is the number of bottles of champagne. Francisca's utility function is $U(s, c) = sc$. From this information we can conclude that:

(a) Francisca consumes equal amounts of strawberries and champagne.

(b) Eduardo consumes more strawberries than champagne.

(c) Francisca consumes twice as many bottles of champagne as boxes of strawberries.

(d) Francisca consumes twice as many boxes of strawberries as bottles of champange.

(e) Eduardo consumes more champagne than strawberries.

Topic: Exchange

Difficulty: 3

% Correct Responses: 75

Discrimination Index: 29

Correct Answer: D

29.7 Tomoko and Matt both consume the same goods in a pure exchange economy. Tomoko is originally endowed with 16 units of good 1 and 14 units of good 2. Matt is originally endowed with 216 units of good 1 and 15 units of good 2. They both have the utility function $U(x_1, x_2) = x_1^{1/3} x_2^{2/3}$. If we let good 1 be the numeraire, so that $p_1 = 1$, then what will be the equilibrium price of good 2?

(a) 2

(b) 32

(c) 1

(d) 16

(e) 8

Topic: Exchange

Difficulty: 3

% Correct Responses: 75

Discrimination Index: 29

Correct Answer: D

29.8 Holly and Steven both consume the same goods in a pure exchange economy. Holly is originally endowed with 5 units of good 1 and 3 units of good 2. Steven is originally endowed with 5 units of good 1 and 2 units of good 2. They both have the utility function $U(x_1, x_2) = x_1^{1/3} x_2^{2/3}$. If we let good 1 be the numeraire, so that $p_1 = 1$, then what will be the equilibrium price of good 2?

(a) 2

(b) 8

(c) 1

(d) 4

(e) 2

Topic: Exchange

Difficulty: 2

% Correct Responses: 93

Discrimination Index: 32

Correct Answer: C

29.9 Pete and Dud live in a two-commodity world. Pete's utility function is $U^P(x_1^P, x_2^P) = x_1^P x_2^P$. Dud's utility function is $U^D(x_1^D, x_2^D) = min\{x_1^D, x_2^d\}$. Pete is initially endowed with 3 units of commodity 1 and 4 units of commodity 2. Dud is initially endowed with 7 units of commodity 1 and 6 units of commodity 2. Which of the following is true?

(a) Both consume 5 units of each good in competitive equilibrium.

(b) At competitive equilibrium, Dud consumes 6 units of each, since the 7th unit of his endowment of commodity 1 gives him no added utility

(c) At a competitive equilibrium, Dud must consume equal amounts of both goods, so the price of good 1 must equal the price of good 2.

(d) The prices of the two goods cannot be equal in equilibrium since Pete and Dud do not have equal endowments.

(e) All of the above statements are false.

Topic: Exchange   Difficulty: 1
% Correct Responses: 95   Discrimination Index: 17
Correct Answer: C

29.10   A situation is Pareto efficient if:

(a) there is no way to make everyone worse off without making someone better off.

(b) aggregate profits are maximized.

(c) there is no way to make someone better off without making someone else worse off.

(d) there is some way to make everyone better off.

(e) there is no way to make anyone better off.

Topic: Elasticity   Difficulty: 2
% Correct Responses: 46   Discrimination Index: 26
Correct Answer: E

29.11   Dan and Marilyn consume two goods, x and y. They have identical Cobb-Douglas utility functions. Initially Dan owns 10 units of x and 10 units of y. Initially Marilyn owns 40 units of x and 20 units of y. They make exchanges to reach a Pareto optimal allocation which is better for both than the no-trade allocation. Which of the following is NOT necessarily true about the allocation they trade to?

(a) Marilyn consumes 5 units of x for every 3 units of y that she consumes.

(b) The locus of Pareto optimal allocations is a diagonal straight line in the Edgeworth box.

(c) Dan's consumption of x is greater than his consumption of y.

(d) Dan consumes more than 10 units of x.

(e) Marilyn consumes at least 40 units of x.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

29.12   Xavier and Yvette are the only two persons on a desert island. There are only two goods, nuts and berries. Xavier's utility function is $U(N_x, B_x) = N_x B_x$. Yvette's utility function is $U(N_y, B_y) = 6N_y + B_y$. Xavier is endowed with 4 units of berries and 10 units of nuts. Yvette is endowed with 6 units of berries and 8 units of nuts. In a competitive equilibrium for this economy, how many units of berries does Xavier consume?

(a) 35

(b) 64

(c) 30

(d) 32

(e) None of the above.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

29.13 Xavier and Yvette are the only two persons on a desert island. There are only two goods, nuts and berries. Xavier's utility function is $U(N_x, B_x) = N_x B_x$. Yvette's utility function is $U(N_y, B_y) = 3N_y + B_y$. Xavier is endowed with 3 units of berries and 10 units of nuts. Yvette is endowed with 6 units of berries and 8 units of nuts. In a competitive equilibrium for this economy, how many units of berries does Xavier consume?

(a) 19.50

(b) 33

(c) 14.50

(d) 16.50

(e) None of the above.

Topic: Exchange   Difficulty: 2
% Correct Responses: 57   Discrimination Index: 9
Correct Answer: B

29.14 Eva and Ollie live in an isolated valley and trade with no one but each other. They consume only grapefruits and lemons. Eva has an initial endowment of 10 grapefruits and 15 lemons. Ollie has an initial endowment of 14 grapefruits and 26 lemons. For Eva, the two goods are perfect substitutes, one-for-one. For Ollie, they are perfect complements, one-for-one. At all Pareto efficient allocations:

(a) Eva must consume at least 25 lemons.

(b) Eva must consume at least 17 lemons.

(c) Ollie must consume 17.50 grapefruits.

(d) the slopes of the two traders' indifference curves are the same.

(e) Ollie must consume all of the grapefruits.

Topic: Exchange

Difficulty: 2

% Correct Responses: 57

Discrimination Index: 9

Correct Answer: B

29.15 Isabella and Horace live in an isolated valley and trade with no one but each other. They consume only tomatoes and grapes. Isabella has an initial endowment of 20 tomatoes and 2 grapes. Horace has an initial endowment of 4 tomatoes and 38 grapes. For Isabella, the two goods are perfect substitutes, one-for-one. For Horace, they are perfect complements, one-for-one. At all Pareto efficient allocations:

(a) Isabella must consume at least 22 grapes.

(b) Isabella must consume at least 16 grapes.

(c) Horace must consume 19 tomatoes.

(d) the slopes of the two traders' indifference curves are the same.

(e) Horace must consume all of the tomatoes.

Topic: Exchange

Difficulty: 3

% Correct Responses: 11

Discrimination Index: 35

Correct Answer: C

29.16 Amaranda and Bartolo consume only two goods, X and Y. They can trade only with each other and there is no production. The total endowment of Good X equals the total endowment of Good Y. Amaranda's utility function is $U(x_A, y_A) = min\{x_A, y_A\}$ and Bartolo's utility function is $U(x_B, y_B) = max\{x_A, y_B\}$. In an Edgeworth box for Amaranda and Bartolo, the set of Pareto optimal allocations is:

(a) the main diagonal.

(b) both diagonals.

(c) the whole Edgeworth box.

(d) the edges of the box and the main diagonal.

(e) the edges of the box.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

29.17   Adelino and Benito consume only two goods X and Y. They trade only with each other and there is no production. Adelino's utility function is given by $U(x_A, y_A) = 2x_A + 5y_A$ and Benito's utility function is given by $U(x_B, y_B) = 2(6x_B + 15y_B)^{1/2}$. In the Edgeworth box constructed for Adelino and Benito, the set of Pareto optimal allocations is:

(a) the main diagonal.

(b) both diagonals.

(c) the entire contents of the Edgeworth box.

(d) the right and left edges of the box.

(e) the upper and lower edges of the box.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

29.18   Tamara and Julio consume only bread and wine. They trade only with each other and there is no production. They both have strictly convex preferences. Tamara's initial endowment of bread and wine is the same as Julio's.

(a) At the initial endowment their marginal rates of substitution must be the same.

(b) In a competitive equilibrium, the ratio of the two prices must be 1.

(c) In a competitive equilibrium, they must consume identical consumption bundles.

(d) If they have identical utility functions, then the initial allocation is Pareto optimal.

(e) None of the above.

Topic: Exchange   Difficulty: 2
% Correct Responses: 53   Discrimination Index: 49
Correct Answer: E

29.19   Arturo and Belen consume only two goods, X and Y. They have strictly convex preferences and no kinks in their indifference curves. At the initial allocation, the ratio of Arturo's marginal utility of X to his marginal utility of Y is A and the ratio of Belen's marginal utility of X to his marginal utility of Y is B, where $A < B$. The competitive equilibrium price ratio is $p_x/p_y = C$. Then:

(a) $C > B$.

(b) $C < A$.

(c) $C = A$.

(d) $C = B$.

(e) $A < C < B$.

Topic: Exchange   Difficulty: 2
% Correct Responses: 30   Discrimination Index: 20
Correct Answer: B

29.20   In a two-person, two-good, exchange economy, both consumers have quasilinear utility functions, linear in Good 2. If quantities of Good 1 are measured horizontally and quantities of Good 2 are measured vertically in the Edgeworth box, the set of Pareto optimal allocations includes

(a) a horizontal line through the interior of the box.

(b) a vertical line.

(c) a straight line from the lower left to the upper right corner of the box.

(d) a curved line from the lower left to the upper right corner of the box.

(e) all four edges of the box.

Topic: Exchange

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.21 A small economy has only two consumers, Roger and Heidi. Roger's utility function is $U(x,y) = x + 50y^{1/2}$. Heidi's utility function is $U(x,y) = x + 5y$. Roger is endowed with 625 units of x and 60 units of y. They make trades to reach a Pareto optimal allocation of resources in which both persons consume positive amounts. How much y does Roger consume?

(a) 50

(b) 25

(c) 28

(d) 23

(e) There is not enough information to determine how much y he will consume.

Topic: Exchange

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.22 A small economy has only two consumers, George and Penelope. George's utility function is $U(x,y) = x + 16y^{1/2}$. Penelope's utility function is $U(x,y) = x + 4y$. George is endowed with 64 units of x and 60 units of y. They make trades to reach a Pareto optimal allocation of resources in which both persons consume positive amounts. How much y does George consume?

(a) 8

(b) 4

(c) 7

(d) 2

(e) There is not enough information to determine how much y he will consume.

Topic: Exchange

Difficulty: 2

% Correct Responses: 20

Discrimination Index: 37

Correct Answer: A

29.23 Abdul's utility is $U(X_A, Y_A) = min\{X_A, Y_A\}$ where X_A and Y_A are his consumptions of goods X and Y respectively. Babette's utility function is $U(X_B, Y_B) = X_B Y_B$ where X_B and Y_B are her consumptions of goods X and Y. Abdul's initial endowment is no units of Y and 10 units of X. Babette's initial endowment is no units of X and 12 units of Y. If X is the numeraire good and p is the price of good Y, then supply will equal demand in the market for Y if the following equation is satisfied.

(a) $10/(p+1) + 6 = 12$

(b) $12/10 = p$

(c) $12/(p+1) + 5 = 12$

(d) $Min\{10, 12\} + 10/(2p) = 12$

(e) $Min\{10, 12\} + 12/2p = 12$

Topic: Exchange

Difficulty: 2

% Correct Responses: 20

Discrimination Index: 37

Correct Answer: A

29.24 Abdul's utility is $U(X_A, Y_A) = min\{X_A, Y_A\}$ where X_A and Y_A are his consumptions of goods X and Y respectively. Babette's utility function is $U(X_B, Y_B) = X_B Y_B$ where X_B and Y_B are her consumptions of goods X and Y. Abdul's initial endowment is no units of Y and 4 units of X. Babette's initial endowment is no units of X and 14 units of Y. If X is the numeraire good and p is the price of good Y, then supply will equal demand in the market for Y if the following equation is satisfied.

(a) $4/(p+1) + 7 = 14$

(b) $14/4 = p$

(c) $14/(p+1) + 2 = 14$

(d) $Min\{4, 14\} + 4/(2p) = 14$

(e) $Min\{4, 14\} + 14/2p = 14$

Topic: Exchange

Difficulty: 2

% Correct Responses: 63

Discrimination Index: 38

Correct Answer: B

29.25 Professor Nightsoil's utility function is $U_N(B_N, P_M) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$ where B_N and B_I are the number of bromides and P_N and P_I are the number of platitudes consumed by Nightsoil and Interface respectively . If Nightsoil's initial endowment is 4 bromides and 15 platitudes and if Interface's initial endowment is 5 bromides and 20 platitudes, then at any Pareto efficient allocation in which both persons consume positive amounts of both goods, it must be that:

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 7 platitudes.

(c) Interface consumes 4.50 bromides.

(d) Interface consumes 3 bromides.

(e) Interface consumes 4 bromides.

Topic: Exchange

Difficulty: 2

% Correct Responses: 63

Discrimination Index: 38

Correct Answer: B

29.26 Professor Nightsoil's utility function is $U_N(B_N, P_M) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$ where B_N and B_I are the number of bromides and P_N and P_I are the number of platitudes consumed by Nightsoil and Interface respectively . If Nightsoil's initial endowment is 2 bromides and 10 platitudes and if Interface's initial endowment is 3 bromides and 25 platitudes, then at any Pareto efficient allocation in which both persons consume positive amounts of both goods, it must be that:

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 7 platitudes.

(c) Interface consumes 2.50 bromides.

(d) Interface consumes 2 bromides.

(e) Interface consumes 5 bromides.

Topic: Exchange

Difficulty: 2

% Correct Responses: 61

Discrimination Index: 58

Correct Answer: B

29.27 An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 5 apples and 4 bananas. Doris has an initial endowment of 10 apples and 2 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation:

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 15 apples for every 6 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 10 apples for every 2 bananas that she consumes.

Topic: Exchange

Difficulty: 2

% Correct Responses: 61

Discrimination Index: 58

Correct Answer: B

29.28 An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 3 apples and 12 bananas. Doris has an initial endowment of 6 apples and 6 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation:

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 9 apples for every 18 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 6 apples for every 6 bananas that she consumes.

Topic: Exchange

% Correct Responses: 55

Correct Answer: C

Difficulty: 2

Discrimination Index: 41

29.29 Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 3 units of quiche and 9 units of wine and Barbie's endowment were 6 units of quiche and 9 units of wine, then at any Pareto optimal allocation where both persons consume some of each good:

(a) Ken would consume 3 units of quiche for every 9 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 9 units of quiche for every 18 units of wine that he consumes.

(d) Barbie would consume 6 units of quiche for every 9 units of wine that she consumes.

(e) None of the above.

Topic: Exchange

% Correct Responses: 55

Correct Answer: C

Difficulty: 2

Discrimination Index: 41

29.30 Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 3 units of quiche and 12 units of wine and Barbie's endowment were 6 units of quiche and 12 units of wine, then at any Pareto optimal allocation where both persons consume some of each good:

(a) Ken would consume 3 units of quiche for every 12 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 9 units of quiche for every 24 units of wine that he consumes.

(d) Barbie would consume 6 units of quiche for every 12 units of wine that she consumes.

(e) None of the above.

Topic: Exchange   Difficulty: 3
% Correct Responses: 20   Discrimination Index: 12
Correct Answer: D

29.31   Morris has the utility function $U(b, w) = 3b + 12w$ and Philip has the utility function $U(b, w) = bw$, where b is the number of books consumed per month and w is bottles of wine consumed per month. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains:

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/4 passing through the lower left corner of the box.

(d) a straight line with slope 1/4 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange   Difficulty: 3
% Correct Responses: 20   Discrimination Index: 12
Correct Answer: D

29.32   Morris has the utility function $U(b, w) = 4b + 12w$ and Philip has the utility function $U(b, w) = bw$, where b is the number of books consumed per month and w is bottles of wine consumed per month. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains:

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/3 passing through the lower left corner of the box.

(d) a straight line with slope 1/3 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange   Difficulty: 2
% Correct Responses: 62   Discrimination Index: 39
Correct Answer: A

29.33   Astrid's utility function is $U(H_A, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 8 units of herring and if Birger's initial endowments are 8 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that:

(a) $8/(p+1) + 4 = 8$

(b) $8/8 = p$

(c) $8/8 = p$

(d) $8/p + 8/2p = 8$

(e) $Min\{8,8\} = p$

Topic: Exchange   Difficulty: 2
% Correct Responses: 62   Discrimination Index: 39
Correct Answer: A

29.34   Astrid's utility function is $U(H_A, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 12 units of herring and if Birger's initial endowments are 8 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that:

(a) $8/(p+1) + 6 = 12$

(b) $8/12 = p$

(c) $12/8 = p$

(d) $8/p + 12/2p = 12$

(e) $Min\{12,8\} = p$

Topic: Exchange

Difficulty: 2

% Correct Responses: 29

Discrimination Index: 27

Correct Answer: B

29.35 Mutt's utility function is $U(m, j) = max\{4m, j\}$ and Jeff's utility function is $U(m, j) = 2m+j$. Mutt is initially endowed with 3 units of milk and 2 units of juice and Jeff is initially endowed with 5 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the:

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange

Difficulty: 2

% Correct Responses: 29

Discrimination Index: 27

Correct Answer: B

29.36 Mutt's utility function is $U(m, j) = max\{4m, j\}$ and Jeff's utility function is $U(m, j) = 3m+j$. Mutt is initially endowed with 3 units of milk and 2 units of juice and Jeff is initially endowed with 5 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the:

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

29.1 In a pure exchange economy, Ollie's utility function is $U(x, y) = 3x + y$ and Fawn's utility function is $U(x, y) = xy$. Ollie's initial allocation is 1 x and no $y's$. Fawn's initial allocation is no $x's$ and 2 $y's$. Draw an Edgeworth box for Fawn and Ollie. Put $x's$ on the horizontal axis and $y's$ on the vertical axis. Measure goods for Ollie from the lower left and goods for Fawn from the upper right. Mark the initial allocation with the letter W. The locus of Pareto optimal points consists of two line segments. Describe these line segments in words or formulas and show them on your graph.

Answer: The Edgeworth box is 1 unit wide and 2 units high. Along the contract curve, Fawn consumes 3 times as much y as x. The contract curve consists of a line running from the upper right corner of the box to the point on the bottom of the box where Fawn consumes all of the y and 2/3 units of x and a line from this point to the lower left of the box.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

29.2 An economy has 2000 people. 1000 of them have utility functions $U(x, y) = x + y$ and 1000 of them have utility functions $U(x, y) = min\{2x, y\}$. Everybody has an initial allocation of 1 unit of x and 1 unit of y. Find the competitive equilibrium prices and consumptions for each type of person.

Answer: Prices are 1 and 1. The first type of person will consume 2/3 units of y and 4/3 units of x and the second type of person will consume 4/3 units of y and 2/3 units of x.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0

29.3 Will likes apples and hates bananas. Wanda likes both apples and bananas. Both of them have convex preferences. Will's initial endowment is 10 apples and 5 bananas. Wanda's initial endowment is 5 bananas and 10 apples. a) Draw an Edgeworth box with apples on the horizontal axis. Label the initial endowment point, W. b) Show two indifference curves for each person. c) Show where on your diagram the Pareto optimal allocations are.

Answer: The Pareto optimal allocations include all of the allocations where Will has no bananas. If stuff for Will is measured from the lower left corner, then these allocations are all along the bottom of the box.

Chapter 30

Topic: Production   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

30.1   If there are constant returns to scale in an industry, then in competitive equilibrium, profits in that industry must necessarily be zero.

Topic: Production   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

30.2   When there is production, a competitive equilibrium is not Pareto optimal unless there are increasing returns to scale.

Topic: Production   Difficulty: 1
% Correct Responses: 82   Discrimination Index: 14
Correct Answer: True

30.3   The marginal rate of transformation between two goods indicates the rate at which an efficient economy would have to give up one good to obtain more of the other.

Topic: Production   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 25
Correct Answer: False

30.4   There are two people and two goods, person A has comparative advantage in the production of good 1 if and only if it takes person A less time to produce good 1 than it takes person B.

Topic: Production   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 22
Correct Answer: A

30.1   A small company produces two goods, swords and plowshares. The company has 100 Type Alpha employees and 100 Type Beta employees. If an Alpha devotes all his time to producing swords, he can make 4 swords per week. If he devotes all his time to producing plowshares, he can make 20 plowshares per week. A Beta can produce either 1 plowshare per week or 1 sword per week. The company wants to produce 425 swords and as many plowshares as it can. How many type Betas should it employ at making swords?

(a) 100

(b) 25

(c) 80

(d) 0

(e) None of the above.

Topic: Production   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 22
Correct Answer: A

30.2   A small company produces two goods, swords and plowshares. The company has 100 Type Alpha employees and 100 Type Beta employees. If an Alpha devotes all his time to producing swords, he can make 3 swords per week. If he devotes all his time to producing plowshares, he can make 6 plowshares per week. A Beta can produce either 1 plowshare per week or 1 sword per week. The company wants to produce 314 swords and as many plowshares as it can. How many type Betas should it employ at making swords?

(a) 100

(b) 14

(c) 85

(d) 0

(e) None of the above.

Topic: Production
% Correct Responses: 64
Correct Answer: B

Difficulty: 2
Discrimination Index: 32

30.3   Ernie and Burt both make pizzas for a living. Making a pizza consists of two tasks: making the crust and applying toppings. Ernie can make crusts at the rate of 30 crusts per hour. He can apply toppings at the rate of 15 toppings per hour. Burt can make crusts at the rate of 15 crusts per hour. He can apply toppings at the rate of 30 toppings per hour. After years of operating separate, one-man shops, they realize they can produce more efficiently by combining operations and dividing the tasks between them. How many more pizzas per hour can they make if they work together and allocate tasks efficiently than they made when they worked separately?

(a) 5

(b) 10

(c) 14

(d) 25

(e) 8

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 2
Discrimination Index: 0

30.4   Mandy is a master woodcarver and Jerry is her apprentice. They will each work the same number of hours making toy cars. Each car requires 4 wheels and 1 body. Mandy makes wheels at the rate of 25 per hour and bodies at the rate of 10 per hour. Jerry makes wheels at the rate of 10 per hour and bodies at the rate of 10 per hour. If they wish to maximize output, how many wheels should Jerry make per hour?

(a) 3

(b) 2

(c) 10

(d) 6

(e) There is not enough information to determine the answer.

Topic: Production

% Correct Responses: 0

Correct Answer: C

Difficulty: 1

Discrimination Index: 0

30.5   Amy Canvas is an artist who produces sketches and paintings. She can produce 12 sketches a week if she spends all of her workday sketching. She can produce 3 paintings per week if she spends all of her workdays painting. The rate at which she produces either sketches or paintings is independent of how many she makes. She can divide her time in any way she wishes between sketching and painting. If you draw her production possibility frontier with sketches on the horizontal axis and paintings on the vertical axis, the production possibility frontier will be

(a) the outer two sides of a rectangle.

(b) a downward sloping curve that gets steeper as you move to the left.

(c) a downward sloping straight line.

(d) an upward sloping straight line.

(e) an upward sloping curve that gets steeper as you move to the left.

Topic: Production

% Correct Responses: 49

Correct Answer: D

Difficulty: 2

Discrimination Index: 25

30.6   Last year a pestilential fungus ravaged the cocoa fields. The price of chocolate has risen abruptly to $1 per ounce. The government is considering emergency measures to aid suffering chocolate addicts. One plan being considered is the Chocolate Relief Plan (CRP). This plan would set a price ceiling of $.80 per ounce on chocolate. This would cause a shortage, so the CRP will limit consumption to no more than 10 ounces of chocolate per person per week. At $.80 per ounce, enough chocolate would be produced for everyone to have 10 ounces. Jill buys less than 10 ounces per week at $1 per ounce, but would buy more than 10 ounces if the price dropped to $.80.

(a) Jill is definitely better off without the CRP.

(b) Jill is better off without the CRP if $1 is the competitive equilibrium price without the CRP.

(c) Jill is better off with CRP only if the industry is monopolized and the price exceeds marginal cost in the absence of the CRP.

(d) Jill is definitely better off with the CRP.

(e) None of the above.

Topic: Production
% Correct Responses: 0
Correct Answer: C

Difficulty: 2
Discrimination Index: 0

30.7 Robinson Crusoe's preferences over coconut consumption, C, and leisure, R, are represented by the utility function, $U(C, R) = CR$. There are 48 hours available for Robinson to allocate between labor and leisure. If he works L hours, he will produce the square root of L coconuts. He will choose to work:

(a) 8 hours.

(b) 12 hours.

(c) 16 hours.

(d) 20 hours.

(e) 24 hours.

Topic: Production
% Correct Responses: 76
Correct Answer: C

Difficulty: 2
Discrimination Index: 23

30.8 Robinson Crusoe spends 4 hours a day catching fish and picking coconuts. He can always catch 2 fish per hour and he can always gather 3 coconuts per hour. His utility function is CF where C is the number of coconuts he eats per day and F is the number of fish he eats per day. How many fish will he choose to eat per day?

(a) 8

(b) 6

(c) 4

(d) 2

(e) 1

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.9   Tip can write 5 pages of term paper or solve 20 workbook problems in an hour, while Spot can write 4 pages of term paper or solve 12 workbook problems in an hour. If they each decide to work a total of 8 hours and to share their output, then if they produce as many pages of term paper as possible given that they produce 35 workbook problems:

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.10   Tip can write 2 pages of term paper or solve 2 workbook problems in an hour, while Spot can write 5 pages of term paper or solve 20 workbook problems in an hour. If they each decide to work a total of 6 hours and to share their output, then if they produce as many pages of term paper as possible given that they produce 10 workbook problems:

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.11   Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 5 geegaws per hour or 20 doodads per hour. Bill can make 4 geegaws per hour or 24 doodads per hour. Assuming that neither of them finds one task more odious than the other:

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.12   Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 3 geegaws per hour or 15 doodads per hour. Bill can make 2 geegaws per hour or 6 doodads per hour. Assuming that neither of them finds one task more odious than the other:

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.13

Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 30 units of red money to spend and 48 units of blue money to spend. The red price of ambrosia is 3 and the blue price of ambrosia is 8. The red price of bubblegum is 1 and the blue price of bubblegum is 2. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded:

(a) by two line segments, one running from $(0, 54)$ to $(10, 24)$ and another running from $(10, 24)$ to $(16, 0)$.

(b) by two line segments one running from $(0, 54)$ to $(6, 30)$ and the other running from $(6, 30)$ to $(16, 0)$.

(c) by two line segments, one running from $(0, 30) to$ $(10, 24)$ and the other running from $(10, 24)$ to $(40, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(10, 24)$.

(e) a vertical line segment and a horizontal line segement, intersecting at $(6, 30)$.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.14

Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 20 units of red money to spend and 48 units of blue money to spend. The red price of ambrosia is 2 and the blue price of ambrosia is 6. The red price of bubblegum is 1 and the blue price of bubblegum is 2. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded:

(a) by two line segments, one running from $(0, 44)$ to $(10, 24)$ and another running from $(10, 24)$ to $(18, 0)$.

(b) by two line segments one running from $(0, 44)$ to $(8, 20)$ and the other running from $(8, 20)$ to $(18, 0)$.

(c) by two line segments, one running from $(0, 32)$ to $(10, 24)$ and the other running from $(10, 24)$ to $(30, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(10, 24)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(8, 20)$.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.15   Robinson Crusoe has exactly 10 hours per day to spend gathering coconuts or catching fish. He can catch 5 fish per hour or he can pick 15 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1.

(a) His income is 150, and the price of fish is 3.

(b) His income is 50, and the price of fish is 5.

(c) His income is 200 and the price of fish is 5.

(d) His income is 150 and the price of fish is 0.20.

(e) His income is 100 and the price of fish is 0.20.

30.16 Robinson Crusoe has exactly 10 hours per day to spend gathering coconuts or catching fish. He can catch 3 fish per hour or he can pick 9 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1.

(a) His income is 90, and the price of fish is 3.

(b) His income is 30, and the price of fish is 3.

(c) His income is 120 and the price of fish is 3.

(d) His income is 90 and the price of fish is 0.33.

(e) His income is 60 and the price of fish is 0.33.

30.17 On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 20 units of milk or 30 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation:

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 10,000.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

30.18 On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 11 units of milk or 31 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation:

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 5,500.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

30.19 In the process of producing one hormone-free, stress-free, happy cow, the New Age Cattle Ranch produces one ton of natural, organic plant fertilizer. Demand for the ranch's cattle is given by $P_c = 2,000 - 10Q_c$, and demand for fertilizer is given by $P_f = 500 - 3Q_f$. The cost of producing Q cow-fertilizer bundles is $C = 5,000 + 300Q$. To maximize profits, the ranch should

(a) produce 85 cow-fertilizer units; sell 85 cattle, and sell 85 tons of fertilizer.

(b) produce 85 cow-fertilizer units; sell 85 cattle, and sell 33.33 tons of fertilizer.

(c) produce 85 cow-fertilizer units; sell 85 cattle, and sell 83.33 tons of fertilizer.

(d) produce 84.62 cow-fertilizer units; sell 84.62 cattle, and sell 84.62 tons of fertilizer.

(e) produce 100 cow-fertilizer units; sell 100 cattle, and dispose of all the fertilizer in an environmentally friendly manner.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

30.20 In the process of producing one hormone-free, stress-free, happy cow, the New Age Cattle Ranch produces one ton of natural, organic plant fertilizer. Demand for the ranch's cattle is given by $P_c = 2,000 - 20Q_c$, and demand for fertilizer is given by $P_f = 500 - 4Q_f$. The cost of producing Q cow-fertilizer bundles is $C = 5,000 + 400Q$. To maximize profits, the ranch should

(a) produce 40 cow-fertilizer units; sell 40 cattle, and sell 40 tons of fertilizer.

(b) produce 40 cow-fertilizer units; sell 40 cattle, and sell 12.50 tons of fertilizer.

(c) produce 62.50 cow-fertilizer units; sell 40 cattle, and sell 62.50 tons of fertilizer.

(d) produce 43.75 cow-fertilizer units; sell 43.75 cattle, and sell 43.75 tons of fertilizer.

(e) produce 50 cow-fertilizer units; sell 50 cattle, and dispose of all the fertilizer in an environmentally friendly manner.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

30.21

For each carload of ore removed from the Matchless Mine, one pound of lead and one ounce of silver is smelted. The cost of mining and processing one carload of ore is $C(Q) = 500 + 2Q + 0.03Q^2$. The demand for silver (per ounce) is $P_s = 50 - 0.40Q_s$ and the demand for lead (per pound) is $P_l = 5 - 0.03Q_l$. What should the owners of the Matchless Mine do to maximize profits (in the long run)?

(a) Mine and process 57.61 carloads of ore, sell 57.61 ounces of silver, and sell 57.61 pounds of lead.

(b) Mine and process 62.50 carloads of ore, sell 62.50 ounces of silver, and sell 25 pounds of lead.

(c) Mine and process 83.33 carloads of ore, sell 55.81 ounces of silver, and sell 83.33 pounds of lead.

(d) Mine and process 83.33 carloads of ore, sell 62.50 ounces of silver, and sell 83.33 pounds of lead.

(e) Shut down the mine.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.22

For each carload of ore removed from the Matchless Mine, one pound of lead and one ounce of silver is smelted. The cost of mining and processing one carload of ore is $C(Q) = 700 + 5Q + 0.01Q^2$. The demand for silver (per ounce) is $P_s = 40 - 0.50Q_s$ and the demand for lead (per pound) is $P_l = 6 - 0.04Q_l$. What should the owners of the Matchless Mine do to maximize profits (in the long run)?

(a) Mine and process 37.27 carloads of ore, sell 37.27 ounces of silver, and sell 37.27 pounds of lead.

(b) Mine and process 40 carloads of ore, sell 40 ounces of silver, and sell 10 pounds of lead.

(c) Mine and process 75 carloads of ore, sell 34.31 ounces of silver, and sell 75 pounds of lead.

(d) Mine and process 75 carloads of ore, sell 40 ounces of silver, and sell 75 pounds of lead.

(e) Shut down the mine.

30.1   On a certain small island, there are 100 units of labor and 200 units of capital. Two goods can be produced. Good A is produced with fixed coefficients, using 1 unit of labor and 3 units of capital per unit of output. Good B is produced with fixed coefficients, using 1 unit of labor and 1 unit of capital per unit of ouput. Let Xa denote the quantity of good A and Xb be the quantity of good B that is produced. The set of feasible outputs combinations for this economy is restricted by the fact that it cannot use more than 100 units of labor or 200 units of capital. a) Write down two inequalities expressed in terms of Xa and Xb that must be satisfied at feasible output combinations. b) Draw a graph showing the economy's production possibility set. Put numerical labels on your graph so that this graph is precisely described.

Answer: a) $Xa + Xb <= 100$, $3Xa + Xb <= 200$ b) Production possibility set is the area in the intersection of the halfspaces from a.

Chapter 31

Topic: Welfare   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.1   According to Arrow's impossibility theorem, it is impossible to find a social ordering that is complete, reflexive, and transitive.

Topic: Welfare   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.2   An allocation is fair if whenever one person envies another, the envied person does not envy the envier.

Topic: Welfare   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.3   In a pure exchange economy if the initial allocation is Pareto optimal, then competitive equilibrium is fair.

Topic: Welfare   Difficulty: 2
% Correct Responses: 60   Discrimination Index: 28
Correct Answer: True

31.4   In a competitive equilibrium, no matter how different their preferences may be, no two people with the same income will envy each other's consumption bundles.

Topic: Welfare   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.5   An allocation which is worse for somebody than the initial allocation can not be Pareto optimal.

Topic: Welfare   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.6   If allocation x is Pareto optimal and allocation y is not, then everyone is at least as well off with x as with y, and someone is better off with x than with y.

Topic: Welfare   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

31.7   The utility possibilities frontier is the boundary of the production possibility set.

Topic: Welfare   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

31.8   In a pure exchange economy, if an allocation is Pareto efficient, it is impossible to have two people who prefer each other's consumption bundles to their own.

Topic: Welfare   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

31.9   If a social welfare function is an increasing function of each person's utility, then every allocation that maximizes this social welfare function must be a Pareto optimum.

Topic: Welfare

% Correct Responses: 84

Correct Answer: B

Difficulty: 1

Discrimination Index: 13

31.1 Mr. Angst has two children, Dick and Jane. Dick is a slow learner and Jane is very bright. If Mr. Angst spends $X per month on Dick's education, Dick will score a total of $X/2$ points on his SAT tests. If Mr. Angst spends $Y per month on Jane's education, she will score a total of $2Y$ on her SAT tests. Mr. Angst has a utility function $U(D, J) = min\{D, J\}$ where D is Dick's SAT score and J is Jane's SAT score. To maximize his utility, he will:

(a) spend equal amounts of money on the two children.

(b) spend 4 times as much money on Dick's education as on Jane's.

(c) spend 4 times as much money on Jane's education as on Dick's.

(d) spend between 1 and 2 times as much money on Dick's education as on Jane's.

(e) spend between 1 and 2 times as much money on Jane's education as on Dick's.

Topic: Welfare

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

31.2 A Borda count is used to decide an election between 3 candidates, x,y, and z, where a score of 1 is awarded to a first choice, 2 to a second choice, and 3 to a third choice. There are 21 voters. 2 voters rank the candidates x first, y second, z third; 2 voters rank the candidates x first, z second, y third; 7 rank the candidates z first, y second, x third; 10 voters rank the candidates y first, z second, x x x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

31.3 A Borda count is used to decide an election between 3 candidates, x,y, and z, where a score of 1 is awarded to a first choice, 2 to a second choice, and 3 to a third choice. There are 16 voters. 4 voters rank the candidates x first, y second, z third; 3 voters rank the candidates x first, z second, y third; 5 rank the candidates z first, y second, x third; 4 voters rank the candidates y first, z second, x x x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

31.4 A parent has two children living in cities with different costs of living. The cost of living in city B is 2 times the cost of living in city A. The child in city A has an income of 4,000 and the child in city B has an income of 8,000. The parent wants to give a total of $4,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to:

(a) give each child $2,000, even though this will buy less goods for the child in city B.

(b) give the child in city B 2 times as much money as the child in city B.

(c) Give the child in city A 2 times as much money as the child in city B.

(d) Give the child in city B 1 times as much money as the child in city A.

(e) Give the child in city A 1 times as much money as the child in city B.

31.5   A parent has two children living in cities with different costs of living. The cost of living in city B is 4 times the cost of living in city A. The child in city A has an income of 5,000 and the child in city B has an income of 20,000. The parent wants to give a total of \$4,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to:

(a) give each child \$2,000, even though this will buy less goods for the child in city B.

(b) give the child in city B 4 times as much money as the child in city B.

(c) Give the child in city A 4 times as much money as the child in city B.

(d) Give the child in city B 2 times as much money as the child in city A.

(e) Give the child in city A 2 times as much money as the child in city B.

31.6   Suppose that Paul and David have utility functions $U = 2A_P + O_P$ and $U = A_D + 2O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 14 apples and 18 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $4A_P + 2O_P$ is at least 46 and $2A_D + 4O_D$ is at least 50.

(c) $2A_P + O_P$ is at least 46 and $2A_D + 2O_D$ is at least 50.

(d) $A_D + O_D$ is at least 16 and $A_S + O_S$ is at least 16.

(e) $2A_P + O_P$ is at least $A_D + 2O_D$ and $A_D + 2O_D$ is at least $2A_P + O_P$.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

31.7 Suppose that Paul and David have utility functions $U = 4A_P + O_P$ and $U = A_D + 2O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 14 apples and 14 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $8A_P + 2O_P$ is at least 70 and $2A_D + 4O_D$ is at least 42.

(c) $4A_P + O_P$ is at least 70 and $2A_D + 2O_D$ is at least 42.

(d) $A_D + O_D$ is at least 14 and $A_S + O_S$ is at least 14.

(e) $4A_P + O_P$ is at least $A_D + 2O_D$ and $A_D + 2O_D$ is at least $4A_P + O_P$.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

31.8 Suppose that Romeo has the utility function $U = S_R^3 S_J^2$ and Juliet has the utility function $U = S_R^2 S_J^3$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 45 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 22.50 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 25 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 23 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 27 units of spaghetti.

31.9   Suppose that Romeo has the utility function $U = S_R^3 S_J^2$ and Juliet has the utility function $U = S_R^2 S_J^3$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 30 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 15 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 16 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 14 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 18 units of spaghetti.

31.10   Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/40$ and McCoy's utility is $U = W_M - W_H^2/40$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 80 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each:

(a) 40 gallons.

(b) 20 gallons and spill 40 gallons in the creek.

(c) 10 gallons and spill 60 gallons in the creek.

(d) 24 gallons and spill the rest in the creek.

(e) 5 gallons and spill the rest in the creek.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

31.11 Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/16$ and McCoy's utility is $U = W_M - W_H^2/16$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of **36** units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each:

(a) 18 gallons.

(b) 8 gallons and spill 20 gallons in the creek.

(c) 4 gallons and spill 28 gallons in the creek.

(d) 12 gallons and spill the rest in the creek.

(e) 2 gallons and spill the rest in the creek.

31.1   No one is meaner and uglier than Gladys. Someone is meaner and uglier than Harold. Therefore Gladys is meaner and uglier than Harold. Is this reasoning correct? If so, explain why. If not, explain why not. (Assume that people can be ranked from ugliest to least ugly by a complete transitive ordering and that there are no ties. Likewise assume that people can be ranked from meanest to least mean by a complete transitive ordering and that there are no ties.)

Answer: The reasoning is incorrect. Consider the following example. There are 3 people: Fred, Gladys and Harold. The rankings for ugly are Gladys is ugliest, Fred is second ugliest and Harold is least ugly. The rankings for mean are Fred is meanest, Harold is second meanest and Gladys is least mean. Then nobody is meaner and uglier than Gladys. Fred is meaner and uglier than Harold, but Gladys is not meaner and uglier than Harold.

Chapter 32

Topic: Externalities   Difficulty: 1
% Correct Responses: 93   Discrimination Index: 11
Correct Answer: False

32.1   A trade between two people is an example of an externality.

Topic: Externalities   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 0
Correct Answer: False

32.2   The only known way to eliminate externalities is through taxes or subsidies.

Topic: Externalities   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

32.3   The efficient amount of air pollution is in general independent of whether polluters or pollutees pay to reduce pollution.

Topic: Externalities   Difficulty: 1
% Correct Responses: 52   Discrimination Index: 45
Correct Answer: False

32.4   A Pigouvian tax on pollution is designed to collect enough revenue to pay for pollution detection by the government.

Topic: Externalities   Difficulty: 2
% Correct Responses: 84   Discrimination Index: 29
Correct Answer: False

32.5   If there are negative externalities in production or consumption, competitive equilibrium is unlikely to be Pareto efficient, but positive externalities enhance the efficiency of the market.

Topic: Externalities   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

32.6   The "tragedy of the commons" refers to the tendency for common property to be overused.

Topic: Externalities
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

32.7 If preferences are quasilinear, then the delineation of property rights has no distributional consequences.

Topic: Externalities
% Correct Responses: 70
Correct Answer: True

Difficulty: 1
Discrimination Index: 5

32.8 If your consumption of toothpaste produces positive externalities for your neighbors (which you ignore), then you are consuming less toothpaste than is Pareto optimal.

Topic: Externalities
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

32.9 Mobil Oil Corporation recently bought the right to emit an additional 900 pounds of noxious gas vapors per day at its Torrance, California refinery. This suggests that allowing pollution rights to be marketed is likely to lead to more pollution than there would be if there were no restrictions on polluting.

Multiple Choice   # Externalities

Topic: Externalities   Difficulty: 2
% Correct Responses: 12   Discrimination Index: 18
Correct Answer: E

32.1   A mountain village owns a common pasture where villagers graze their goats. The cost to a goat owner of owning and caring for a goat is 4 groschens. The pasture gets overgrazed if too many goats share the pasture. The total revenue from all goats on the common pasture is $f(g) = 48g - 2g^2$, where g is the number of goats on the pasture. The town council notices that total profit from the pasture is not maximized if villagers are allowed to pasture goats for free. The council decides to allow a goat to use the common pasture only if its owner buys it a goat license. To maximize total profit (of villagers and council), how many groschens per goat should the council charge?

(a) 12

(b) 20

(c) 24

(d) 26

(e) 22

Topic: Externalities   Difficulty: 2
% Correct Responses: 84   Discrimination Index: 30
Correct Answer: A

32.2   The 130 campers at Bear Creek Campground love their own campfires, but hate the smoke from their neighbors' campfires. Each camper's utility function is $U = 22f - f^2 - s$ where f is the number of hours her own campfire burns per day and where s is the amount of smoke in the air. It happens that s is 12 times the average amount of hours that campers use their fires. The campground authority could make all campers better off by limiting the number of hours of campfire per day for everyone. How many hours of campfires per day should the authority allow each camper in order to make the typical camper as well off as possible?

(a) 5

(b) 11

(c) 3

(d) 6

(e) Campers will be best off if they are free to choose their own amounts of campfire.

Topic: Externalities
% Correct Responses: 84
Correct Answer: A

Difficulty: 2
Discrimination Index: 30

32.3 The 130 campers at Bear Creek Campground love their own campfires, but hate the smoke from their neighbors' campfires. Each camper's utility function is $U = 17f - f^2 - s$ where f is the number of hours her own campfire burns per day and where s is the amount of smoke in the air. It happens that s is 9 times the average amount of hours that campers use their fires. The campground authority could make all campers better off by limiting the number of hours of campfire per day for everyone. How many hours of campfires per day should the authority allow each camper in order to make the typical camper as well off as possible?

(a) 4

(b) 8.50

(c) 2

(d) 5

(e) Campers will be best off if they are free to choose their own amounts of campfire.

Topic: Externalities
% Correct Responses: 57
Correct Answer: A

Difficulty: 2
Discrimination Index: 28

32.4 Two stores are located side by side. They attract customers to each other and to themselves by advertising. The profit functions of the two stores are $(75 + x_2)x_1 - 2x_1^2$ for store 1, and $(120 + x_1)x_2 - 2x_2^2$ for store 2, where x_1 and x_2 are total advertising expenditures by stores 1 and 2 respectively. If each store sets its advertising expenditures independently (as in Nash equilibrium), how much would store 1 spend on advertising?

(a) 28

(b) 30

(c) 25

(d) 33

(e) None of the above.

Topic: Externalities

Difficulty: 2

% Correct Responses: 57

Discrimination Index: 28

Correct Answer: A

32.5 Two stores are located side by side. They attract customers to each other and to themselves by advertising. The profit functions of the two stores are $(120 + x_2)x_1 - 2x_1^2$ for store 1, and $(60 + x_1)x_2 - 2x_2^2$ for store 2, where x_1 and x_2 are total advertising expenditures by stores 1 and 2 respectively. If each store sets its advertising expenditures independently (as in Nash equilibrium), how much would store 1 spend on advertising?

(a) 36

(b) 38

(c) 33

(d) 41

(e) None of the above.

Topic: Externalities

Difficulty: 3

% Correct Responses: 62

Discrimination Index: 57

Correct Answer: C

32.6 Two stores are located side by side and attract customers to each other and to themselves by advertising. Where x_1 and x_2 are the advertising expenditures of stores 1 and 2, the profits of the firms are $(48 + x_2)x_1 - 2(x_1)^2$ for store 1 and $(54 + x_1)x_2 - 2(x_2)^2$ for store 2. Knowing these functions, one investor buys both stores. In order to maximize his total profits, how much should he spend on advertising for store 1?

(a) 10

(b) 26

(c) 25

(d) 35

(e) None of the above.

Topic: Externalities   Difficulty: 2
% Correct Responses: 18   Discrimination Index: 34
Correct Answer: A

32.7   A small coffee company roasts coffee beans in its shop. The unroasted beans cost the company 200 cents per pound. The MARGINAL cost of roasting coffee beans is $150 - 10q + q^2$ cents per pound when q pounds are roasted. The smell of roasting beans imposes costs on the company's neighbors. The total amount that neighbors would be willing to pay to have the shop stop roasting altogether is $5q^2$, where q is the number of pounds being roasted. The company sells its output in a competitive market at 450 cents per pound. What is the socially efficient amount of coffee for the company to roast?

(a) 10 lbs.

(b) 15 lbs.

(c) the square root of 10 lbs.

(d) 45 lbs.

(e) None of the above.

Topic: Externalities   Difficulty: 2
% Correct Responses: 40   Discrimination Index: 20
Correct Answer: B

32.8   Firm 1 produces output x with a cost function $c_1(x) = x^2 + 10$. Firm 2 produces output y with a cost function $c_2(y, x) = y^2 + x$. Thus, the more that firm 1 produces, the greater are firm $2's$ costs. Both firms face competitive product markets. The competitive price of x is 20 and the competitive price of y is 40. No new firms can enter the industry and the old ones must remain. The efficient Pigouvian tax on the x good is:

(a) 0.

(b) 1.

(c) 2.

(d) 3.

(e) 4.

Topic: Externalities

Difficulty: 2

% Correct Responses: 25

Discrimination Index: 21

Correct Answer: A

32.9   Mike's utility function is $U(c, d, h) = 4c + 6d - d^2 - 6h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other citizens of his town, and c is the amount of money he has to spend on other things than gasoline and auto repairs. There are 1001 identical citizens in Mike's home town. Mike's expenses for gasoline and auto repairs amount to \$.50 per hour for the time he spends driving. If Mike believes that his amount of driving won't affect the amount that others drive, how many hours per day will he choose to drive?

(a) 2

(b) 3

(c) 4

(d) 1

(e) 0.50

Topic: Externalities

Difficulty: 2

% Correct Responses: 25

Discrimination Index: 21

Correct Answer: A

32.10   Mike's utility function is $U(c, d, h) = 4c + 12d - d^2 - 6h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other citizens of his town, and c is the amount of money he has to spend on other things than gasoline and auto repairs. There are 1001 identical citizens in Mike's home town. Mike's expenses for gasoline and auto repairs amount to \$.50 per hour for the time he spends driving. If Mike believes that his amount of driving won't affect the amount that others drive, how many hours per day will he choose to drive?

(a) 5

(b) 6

(c) 7

(d) 2.50

(e) 0.50

32.11   Marbella has 101 residents. All wear the same fancy clothes and each has the same utility function, $u(m, b, B) = m + 16b - b^2 - B/50$, where m is the amount of maccaroni (in kilograms) that he or she eats per day, b is the number of hours that he or she spends on the beach per day, and B is the total number of person-hours spent per day on the beach by other residents of Marbella. Each has an income of $10 per day and maccaroni costs $1 per kilogram. City council is considering a law that would limit the amount of time that any person can spend on the beach. How many hours per day should they allow in order to maximize the utility of a typical Marbellite?

(a) 8 hours

(b) 10 hours

(c) 7 hours

(d) 11 hours

(e) They could not possibly be made better off by legislation that limits their freedom to choose.

32.12   Marbella has 101 residents. All wear the same fancy clothes and each has the same utility function, $u(m, b, B) = m + 22b - b^2 - B/50$, where m is the amount of maccaroni (in kilograms) that he or she eats per day, b is the number of hours that he or she spends on the beach per day, and B is the total number of person-hours spent per day on the beach by other residents of Marbella. Each has an income of $10 per day and maccaroni costs $1 per kilogram. City council is considering a law that would limit the amount of time that any person can spend on the beach. How many hours per day should they allow in order to maximize the utility of a typical Marbellite?

(a) 11 hours

(b) 13 hours

(c) 10 hours

(d) 14 hours

(e) They could not possibly be made better off by legislation that limits their freedom to choose.

Topic: Externalities

Difficulty: 0

% Correct Responses: 83

Discrimination Index: 28

Correct Answer: C

32.13 Suppose that in Horsehead, Massachusetts, the cost of operating a lobster boat is $3,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $1000(19x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 16$ and $X2 = 16$.

(b) $X1 = 8$ and $X2 = 6$

(c) $X1 = 16$ and $X2 = 8$

(d) $X1 = 20$ and $X2 = 12$

(e) None of the above.

Topic: Externalities

Difficulty: 0

% Correct Responses: 83

Discrimination Index: 28

Correct Answer: C

32.14 Suppose that in Horsehead, Massachusetts, the cost of operating a lobster boat is $2,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $1000(14x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 12$ and $X2 = 12$.

(b) $X1 = 6$ and $X2 = 4$

(c) $X1 = 12$ and $X2 = 6$

(d) $X1 = 16$ and $X2 = 10$

(e) None of the above.

32.15   An apiary is located next to an apple orchard. The apiary produces honey and the apple orchard produces apples. The cost function of the apiary is $C_H(H, A) = H^2/100 - 2A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 4 and the price of apples is 1 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a single owner so as to maximize total profit.

(a) $A1 = 25$ and $A2 = 50$

(b) $A1 = A2 = 50$

(c) $A1 = 75$ and $A2 = 50$

(d) $A1 = 50$ and $A2 = 150$

(e) $A1 = 200$ and $A2 = 50$

32.16   An apiary is located next to an apple orchard. The apiary produces honey and the apple orchard produces apples. The cost function of the apiary is $C_H(H, A) = H^2/100 - 3A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 3 and the price of apples is 4 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a single owner so as to maximize total profit.

(a) $A1 = 100$ and $A2 = 200$

(b) $A1 = A2 = 200$

(c) $A1 = 175$ and $A2 = 200$

(d) $A1 = 200$ and $A2 = 350$

(e) $A1 = 150$ and $A2 = 200$

32.17 Will's utility is $U(c, d, h) = 8c + 18d - d^2 - 6h$, where d is the number of hours per day that he spends driving around, h is the number of hours per day spent driving around by other people in his home town and c is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$.50 per hour of driving. All the people in Will's home town have the same tastes. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive the same amount, they would all be best off if each drove D2 hours per day where:

(a) $D1 = 7$ and $D2 = 4$.

(b) $D1 = D2 = 7$.

(c) $D1 = 9$ and $D2 = 5$.

(d) $D1 = 10$ and $D2 = 0$.

(e) $D1 = 7$ $D2 = 2$.

32.18 Chen's utility is $U(c, d, h) = 4c + 8d - d^2 - 2h$, where d is the number of hours per day that he spends driving around, h is the number of hours per day spent driving around by other people in his home town and c is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$.50 per hour of driving. All the people in Chen's home town have the same tastes. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive the same amount, they would all be best off if each drove D2 hours per day where:

(a) $D1 = 3$ and $D2 = 2$.

(b) $D1 = D2 = 3$.

(c) $D1 = 5$ and $D2 = 3$.

(d) $D1 = 6$ and $D2 = 1$.

(e) $D1 = 3$ $D2 = 0$.

Topic: Externalities
% Correct Responses: 0
Correct Answer: B

Difficulty: 0
Discrimination Index: 0

32.19 An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $30X - X^2$ and profits of the developer are $36Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to the profits of the developer.

(a) $H1 = H2 = 14$.

(b) $H1 = 14$ and $H2 = 18$.

(c) $H1 = 18$ and $H2 = 14$

(d) $H1 = 16$ and $H2 = 17$

(e) $H1 = 17$ and $H2 = 21$

Topic: Externalities
% Correct Responses: 0
Correct Answer: B

Difficulty: 0
Discrimination Index: 0

32.20 An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $34X - X^2$ and profits of the developer are $32Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to the profits of the developer.

(a) $H1 = H2 = 10$.

(b) $H1 = 10$ and $H2 = 16$.

(c) $H1 = 16$ and $H2 = 10$

(d) $H1 = 12$ and $H2 = 15$

(e) $H1 = 15$ and $H2 = 19$

Topic: Externalities   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

32.21 A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(12 + J)C - 2C^2$ and the profits of the jeweler will be $(60 + C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be:

(a) 14.

(b) 28.

(c) 42.

(d) 7.

(e) 21.

Topic: Externalities   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

32.22 A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(30 + J)C - 2C^2$ and the profits of the jeweler will be $(72 + C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be:

(a) 22.

(b) 44.

(c) 66.

(d) 11.

(e) 33.

Topic: Externalities   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

32.23   Millie Bush has written a best-seller. Revenues net of production costs are $300 T^{1/3} A^{1/3}$ where T is the number of publicity trips Millie takes and A is the number of ads for the book that appear. Millie has to pay for all of her own publicity trips, which cost \$100 each. Her publisher pays for the advertising, which costs \$100 per ad. Revenues from the book are split equally between Millie and her publisher. Let T1 be the number of trips that Millie would choose to make in a Nash equilibrium where she chooses the number of trips and the publisher chooses the amount of advertising. Let T2 be the number of trips that Millie should make if trips and advertising are determined so as to maximize total profits net of trip and ad costs.

(a) $T1 = 1$ and $T2 = 1$.

(b) $T1 = 1$ and $T2 = 2$.

(c) $T1 = 2$ amd $T2 = 1$.

(d) $T1 = 1$ and $T2 = 1/8$.

(e) $T1 = 1/8$ and $T2 = 1$.

Topic: Externalities   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0

32.1   Two firms in a grimy Ohio town produce the same product in a competitive industry. Each has an old factory using an old technology. It still pays to operate these factories but it would not pay to expand them. The only variable factor used by either firm is labor. Each firm pollutes the other and thus reduces the output of the other firm. The production functions of firms A and B respectively are $Qa = La^{.5} - (2/3)Qb$ and $Qb = Lb^{.5} - (1/3)Qa$ where $La^{.5}$ and $Lb^{.5}$ are the square roots respectively of the amount of labor used by firms A and B. The wage rate of labor is 1 and the price of the firms' output is 12. a)If the two firms each maximize profits independently, what is there total output and how much quasi-rents do their factories earn? b) If someone buys them both and maximizes joint profits, how much quasi-rents are earned in total?

Answer: Each produces 48 and quasirents are 12 for each. Each produces 36 and quasirents total 40.

Chapter 33

True-False   Law and Economics

Topic: Law and Economics
% Correct Responses: 93
Correct Answer: False

Difficulty: 1
Discrimination Index: 12

33.1 If detection of a crime is very unlikely, then economic analysis suggests that the penalty for this crime should be small.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: True

Difficulty: 2
Discrimination Index: 0

33.2 Economic analysis suggests that the severity of penalty for a crime should be greater the more serious the crime and also be greater the less likely it is to be detected.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

33.3 If the probability of an accident depends on the actions of the victim as well as those of the perpetrator, then strict liability rules are likely to lead potential victims to take too many risks.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: False

Difficulty: 2
Discrimination Index: 0

33.4 "Negligence rules" which say that the injurer is liable for all damages unless he has taken "due care", are likely to lead to inefficiency regardless of the standards of due care, because they do not take into account the incentives of the victim to avoid an accident.

Topic: Law and Economics
% Correct Responses: 59
Correct Answer: False

Difficulty: 1
Discrimination Index: 43

33.5 Under strict liability rules, potential victims are likely to spend too much resources on avoiding accidents.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: False

Difficulty: 2
Discrimination Index: 0

33.6 Economic analysis suggests that it is inefficient to make the punishment for an anti-social action greater than the cost of that action to society.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

33.7 Tort law is the branch of antitrust law that is concerned with damages for monopolistic practices, unfair practices and price-fixing.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: False

Difficulty: 1
Discrimination Index: 0

33.8 No-fault automobile insurance appears to be a mistaken policy, because the appropriate punishment for dangerous driving is restitution for the damage done in the event of an accident.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: True

Difficulty: 1
Discrimination Index: 0

33.9 Socially optimal punishment and optimal compensation in the event of an accident need not be equal.

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: False

Difficulty: 3
Discrimination Index: 0

33.10 Economic analysis suggests that if the two participants in an automobile accident are determined to be equally at fault and if the damages to the two parties are equal, then there is no economic justification for punishing either of them beyond the damage they have already received.

Multiple Choice   # Law and Economics

Topic: Law and Economics   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

33.1 Madame N. gets a total payment of \$ 24 log x if she delivers x stolen buttons to her "fence". She has to pay a fine of \$$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame N. to taking 6 buttons?

(a) \$20

(b) \$400

(c) \$44

(d) \$40

(e) \$60

Topic: Law and Economics   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

33.2 Madame N. gets a total payment of \$ 4 log x if she delivers x stolen buttons to her "fence". She has to pay a fine of \$$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame N. to taking 4 buttons?

(a) \$5

(b) \$100

(c) \$14

(d) \$10

(e) \$15

33.3   Jim rides his bicycle at speed s and has money m_J; his utility function if he does not collide with Dick is $20\ s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim does not collide with him is $10\ w + m_D$. The probability and severity of a collision depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident will be $s^2 + w^2$, for each of them. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 10$ and $w = 10$

(b) $s = 10$ and $w = 5$

(c) $s = 20$ and $w = 10$

(d) $s = 15$ and $w = 5$

(e) $s = 5$ and $w = 2.50$

33.4   Jim rides his bicycle at speed s and has money m_J; his utility function if he does not collide with Dick is $16\ s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim does not collide with him is $10\ w + m_D$. The probability and severity of a collision depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident will be $s^2 + w^2$, for each of them. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 8$ and $w = 10$

(b) $s = 8$ and $w = 5$

(c) $s = 16$ and $w = 10$

(d) $s = 13$ and $w = 5$

(e) $s = 4$ and $w = 2.50$

Topic: Law and Economics   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0

33.1 Discuss the relation between efficient punishments for those who "cause" accidents and efficient compensation for accident victims.

Answer:

Chapter 34

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

34.1 If the demand curve for DoorKnobs operating system is related to perceived market share s and actual market share t by the equation $p = 245s(1 - x)$, then in the long run, the highest price at which DoorKnobs would maintain a market share of 6/7 would be

(a) $45.

(b) $39.

(c) $30.

(d) $27.

(e) $36.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

34.2 If the demand curve for DoorKnobs operating system is related to perceived market share s and actual market share t by the equation $p = 196s(1 - x)$, then in the long run, the highest price at which DoorKnobs would maintain a market share of 4/7 would be

(a) $72.

(b) $62.40.

(c) $48.

(d) $43.20.

(e) $57.60.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

34.3 If the demand curve for DoorKnobs operating system is related to perceived market share s and actual market share t by the equation $p = 128s(1 - x)$, then in the long run, the highest price at which DoorKnobs would maintain a market share of 6/8 would be

(a) $36.

(b) $31.20.

(c) $24.

(d) $21.60.

(e) $28.80.

34.4   If the demand curve for DoorKnobs operating system is related to perceived market share s and actual market share t by the equation $p = 486s(1 - x)$, then in the long run, the highest price at which DoorKnobs would maintain a market share of 6/9 would be

(a) $162.

(b) $140.40.

(c) $108.

(d) $97.20.

(e) $129.60.

34.5   If the demand curve for DoorKnobs operating system is related to perceived market share s and actual market share t by the equation $p = 216s(1 - x)$, then in the long run, the highest price at which DoorKnobs would maintain a market share of 4/6 would be

(a) $72.

(b) $62.40.

(c) $48.

(d) $43.20.

(e) $57.60.

34.6   Professor Kremepuff has published a new textbook. This book will be used in classes for two years, at which time it will be replaced by a new edition. The publisher charges a price of $\$p_1$ in the first year and $\$p_2$ in the second year. After the first year, bookstores buy back copies from students for $\$p_2/2$ and resell them to students in the second year for $\$p_2$. (Students are indifferent between new and used copies.) The cost to a student in the first year of owning the book for a year is therefore $\$p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay $\$v$ to own the book for a year is $60,000 - 1,000v$. The number of students taking the course in the first year who are willing to pay at least $\$w$ to keep the book for reference rather than resell it is $60,000 - 5,000w$. In the second year, the number of students who have not previously taken the course and are willing to pay at least $\$p$ for a copy of the book is $50,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and p_2 in the second year, with $p_1 \geq p_2$, then the total number of copies that the publisher sells over two years will be equal to

(a) $110,000 - 1,000(p_1 + p_2/2)$.

(b) $120,000 - 1,000(p_1 - (p_2/2))$.

(c) $120,000 - 3,000p_2$.

(d) $120,000 - 1,000p_1 - 1,000p_2$.

(e) $110,000 - 1,500p_2$.

34.7   Professor Kremepuff has published a new textbook. This book will be used in classes for two years, at which time it will be replaced by a new edition. The publisher charges a price of $\$p_1$ in the first year and $\$p_2$ in the second year. After the first year, bookstores buy back copies from students for $\$p_2/2$ and resell them to students in the second year for $\$p_2$. (Students are indifferent between new and used copies.) The cost to a student in the first year of owning the book for a year is therefore $\$p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay $\$v$ to own the book for a year is $60,000 - 1,000v$. The number of students taking the course in the first year who are willing to pay at least $\$w$ to keep the book for reference rather than resell it is $60,000 - 5,000w$. In the second year, the number of students who have not previously taken the course and are willing to pay at least $\$p$ for a copy of the book is $50,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and p_2 in the second year, with $p_1 \geq p_2$, then the total number of copies that the publisher sells over two years will be equal to

(a) $110,000 - 1,000(p_1 + p_2/2)$.

(b) $120,000 - 1,000(p_1 - (p_2/2))$.

(c) $120,000 - 3,000p_2$.

(d) $120,000 - 1,000p_1 - 1,000p_2$.

(e) $110,000 - 1,500p_2$.

34.8   Professor Kremepuff has published a new textbook. This book will be used in classes for two years, at which time it will be replaced by a new edition. The publisher charges a price of $\$p_1$ in the first year and $\$p_2$ in the second year. After the first year, bookstores buy back copies from students for $\$p_2/2$ and resell them to students in the second year for $\$p_2$. (Students are indifferent between new and used copies.) The cost to a student in the first year of owning the book for a year is therefore $\$p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay $\$v$ to own the book for a year is $40,000 - 1,000v$. The number of students taking the course in the first year who are willing to pay at least $\$w$ to keep the book for reference rather than resell it is $40,000 - 5,000w$. In the second year, the number of students who have not previously taken the course and are willing to pay at least $\$p$ for a copy of the book is $30,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and p_2 in the second year, with $p_1 \geq p_2$, then the total number of copies that the publisher sells over two years will be equal to

(a) $70,000 - 1,000(p_1 + p_2/2)$.

(b) $80,000 - 1,000(p_1 - (p_2/2))$.

(c) $80,000 - 3,000p_2$.

(d) $80,000 - 1,000p_1 - 1,000p_2$.

(e) $70,000 - 1,500p_2$.

34.9   Professor Kremepuff has published a new textbook. This book will be used in classes for two years, at which time it will be replaced by a new edition. The publisher charges a price of $\$p_1$ in the first year and $\$p_2$ in the second year. After the first year, bookstores buy back copies from students for $\$p_2/2$ and resell them to students in the second year for $\$p_2$. (Students are indifferent between new and used copies.) The cost to a student in the first year of owning the book for a year is therefore $\$p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay $\$v$ to own the book for a year is $50,000 - 1,000v$. The number of students taking the course in the first year who are willing to pay at least $\$w$ to keep the book for reference rather than resell it is $50,000 - 5,000w$. In the second year, the number of students who have not previously taken the course and are willing to pay at least $\$p$ for a copy of the book is $40,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and p_2 in the second year, with $p_1 \geq p_2$, then the total number of copies that the publisher sells over two years will be equal to

(a) $90,000 - 1,000(p_1 + p_2/2)$.

(b) $100,000 - 1,000(p_1 - (p_2/2))$.

(c) $100,000 - 3,000p_2$.

(d) $100,000 - 1,000p_1 - 1,000p_2$.

(e) $90,000 - 1,500p_2$.

Topic: Information Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

34.10 Professor Kremepuff has published a new textbook. This book will be used in classes for two years, at which time it will be replaced by a new edition. The publisher charges a price of $\$p_1$ in the first year and $\$p_2$ in the second year. After the first year, bookstores buy back copies from students for $\$p_2/2$ and resell them to students in the second year for $\$p_2$. (Students are indifferent between new and used copies.) The cost to a student in the first year of owning the book for a year is therefore $\$p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay $\$v$ to own the book for a year is $50,000 - 1,000v$. The number of students taking the course in the first year who are willing to pay at least $\$w$ to keep the book for reference rather than resell it is $50,000 - 5,000w$. In the second year, the number of students who have not previously taken the course and are willing to pay at least $\$p$ for a copy of the book is $40,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and p_2 in the second year, with $p_1 \geq p_2$, then the total number of copies that the publisher sells over two years will be equal to

(a) $90,000 - 1,000(p_1 + p_2/2)$.

(b) $100,000 - 1,000(p_1 - (p_2/2))$.

(c) $100,000 - 3,000p_2$.

(d) $100,000 - 1,000p_1 - 1,000p_2$.

(e) $90,000 - 1,500p_2$.

Topic: Information Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

34.11 A group of 11 consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 of type 2, Consumer 3 of type 3, and so on. Each consumer's willingness to pay to belong to the network is proportional to the number of consumers who belong. Where k is the number of consumers who belong, the willingness to pay of a type n consumer is equal to k times n. What is the highest price at which 7 consumers could all connect to the network and either make a profit or at least break even?

(a) 37

(b) 33

(c) 32

(d) 40

(e) 35

Topic: Information Technology Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: E

34.12   A group of 9 consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 of type 2, Consumer 3 of type 3, and so on. Each consumer's willingness to pay to belong to the network is proportional to the number of consumers who belong. Where k is the number of consumers who belong, the willingness to pay of a type n consumer is equal to k times n. What is the highest price at which 7 consumers could all connect to the network and either make a profit or at least break even?

(a) 23

(b) 19

(c) 18

(d) 26

(e) 21

Topic: Information Technology Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: E

34.13   A group of 11 consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 of type 2, Consumer 3 of type 3, and so on. Each consumer's willingness to pay to belong to the network is proportional to the number of consumers who belong. Where k is the number of consumers who belong, the willingness to pay of a type n consumer is equal to k times n. What is the highest price at which 7 consumers could all connect to the network and either make a profit or at least break even?

(a) 37

(b) 33

(c) 32

(d) 40

(e) 35

Topic: Information Technology Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: E

34.14 A group of 11 consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 of type 2, Consumer 3 of type 3, and so on. Each consumer's willingness to pay to belong to the network is proportional to the number of consumers who belong. Where k is the number of consumers who belong, the willingness to pay of a type n consumer is equal to k times n. What is the highest price at which 9 consumers could all connect to the network and either make a profit or at least break even?

(a) 29

(b) 25

(c) 24

(d) 32

(e) 27

Topic: Information Technology Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: E

34.15 A group of 11 consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 of type 2, Consumer 3 of type 3, and so on. Each consumer's willingness to pay to belong to the network is proportional to the number of consumers who belong. Where k is the number of consumers who belong, the willingness to pay of a type n consumer is equal to k times n. What is the highest price at which 9 consumers could all connect to the network and either make a profit or at least break even?

(a) 29

(b) 25

(c) 24

(d) 32

(e) 27

Chapter 35

Topic: Public Goods   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.1　To say that preferences are single peaked means that everybody either prefers more public goods to less or everybody prefers less public goods to more.

Topic: Public Goods   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

35.2　If preferences are single peaked, then pairwise majority voting among alternative options will not lead to voting cycles.

Topic: Public Goods   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.3　A tax imposed on polluters to give them an incentive to make an efficient reduction in pollution is called a Clarke tax.

Topic: Public Goods   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 20
Correct Answer: True

35.4　If a pure public good is provided by voluntary contributions, economic theory predicts that in general too little will be supplied.

Topic: Public Goods   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.5　A Pareto optimal amount of public goods is shown on a graph (with quantities of public goods on the x axis) by the point at which the horizontal sum of the marginal rate of substitution curves meets the marginal cost curve.

Topic: Public Goods   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.6 One of the problems with the Clarke tax mechanism is that when it is used, people have an incentive to lie about their preferences.

Topic: Public Goods   Difficulty: 1
% Correct Responses: 80   Discrimination Index: 28
Correct Answer: False

35.7 Economists define public goods to be those goods that are supplied by the government and private goods to be those goods that are supplied by the private sector.

Topic: Public Goods   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.8 If the supply of public goods is determined by majority vote, then the outcome must be Pareto optimal.

Topic: Public Goods   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

35.9 If preferences are single-peaked, then everyone will agree about the right amount of public goods to be supplied.

35.1 A quiet town in Kansas has 2000 people, all of whom have the same preferences. There is one private good and one public good. Each person, i, in town has utility $U(x_i, y) = x_i + y^{.5}$, where x_i is private good for person i and y is the amount of public good that the town provides. If the private good costs \$1 per unit and the public good costs \$10 per unit, then the Pareto optimal amount of public good for the town to provide is:

(a) 100 units.

(b) 500 units.

(c) 2000 units

(d) 8000 units.

(e) 10000 units

35.2 The Sons of Knute had a hunting lodge up on Loon Lake which burned down last winter. They plan to rebuild it this summer and are trying to decide how large the new lodge should be. The organization has 50 members. The marginal rate of substitution of each of them between square feet of hunting lodge and money for other goods is $1.2 - .0004y$ where y is the size of the hunting lodge in square feet. What is the efficient size for the new hunting lodge?

(a) 1,000 square feet

(b) 1,200 square feet

(c) 2,000 square feet

(d) 2,400 square feet

(e) None of the above.

Topic: Public Goods   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

35.3   Anton, Bertha, and Cecilia all consume crackers and music. Crackers are a pure private good and music is a pure public good. Their utility functions are: $U^A(c_A, m) = c_A m$, $U^B(c_B, m) = c_B m$, and $U^B(c_C, m) = 2c_C m$, where c_A is Anton's cracker consumption, c_B is Bertha's cracker consumption, and c_C is Cecilia's cracker consumption and where m is the amount of music jointly consumed by all three of them. Music is measured in hours. Crackers cost \$1 each. Music costs \$10 an hour. Anton's wealth is \$30, Bertha's wealth is \$50, and Cecilia's wealth is \$20. What is the efficient amount of music for them to consume?

(a) 2 hours

(b) 3 hours

(c) 4 hours

(d) 5 hours

(e) 6 hours

Topic: Public Goods   Difficulty: 3

% Correct Responses: 85   Discrimination Index: 0

Correct Answer: C

35.4   Which of the following is the best example of a public good as defined in your text?

(a) cable television

(b) day care

(c) radio broadcasts

(d) medical care

(e) Disneyland

Topic: Public Goods   Difficulty: 2
% Correct Responses: 39   Discrimination Index: 24
Correct Answer: A

35.5   A small coffee company roasts coffee beans in its shop. The unroasted beans cost the company 200 cents per pound. The marginal cost of roasting coffee beans is $150 - 10q + q^2$ cents per pound when q pounds are roasted. The smell of roasting beans imposes costs on the company's neighbors. The total amount that neighbors would be willing to pay to have the shop stop roasting altogether is $5q^2$, where q is the number of pounds being roasted. The company sells its output in a competitive market at 450 cents per pound. What is the socially efficient amount of coffee for the company to roast?

(a) 10 lbs.

(b) 15 lbs.

(c) the square root of 10 lbs.

(d) 45 lbs.

(e) None of the above.

Topic: Public Goods   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

35.6   Nadia Comeneci and Mr. X have preferences defined over pizza, p, and trampolines, t. They have identical utility functions, $U(p,t) = p + 2{,}000t^{1/2}$. Each pizza costs \$1 and each trampoline costs \$1,000. Nadia and Mr. X like to share, and indeed trampolines are a public good for them. Pizza, however, is a private good. We don't know their exact incomes, but we do know that each of them earns at least \$10,000. Which of the following is true?

(a) The Pareto efficient number of trampolines for them is 4.

(b) The Pareto efficient number of trampolines for them is 1.

(c) The Pareto efficient number of trampolines for them cannot be determined without knowing how the costs will be shared.

(d) The Pareto efficient number of trampolines for them is 2.

(e) Since their preferences are homothetic, their income elasticity of demand for pizza is -1.

35.7   Just north of the town of Muskrat, Ontario, is the town of Brass Monkey, population 6400. Brass Monkey, like Muskrat, has a single public good, the town skating rink, and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 81/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is \$1 per bottle. The cost of the skating rink to the city is \$4 per square meter. Everyone has an income of at least \$5,000. What is the Pareto efficient size for the town skating rink?

(a) 360 square meters

(b) 480 square meters

(c) 240 square meters

(d) 725 square meters

(e) None of the above.

35.8   Bob and Ray are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1+S)M_B$ and Ray's utility function is $U_R(S, M_R) = (4+S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of \$800 to spend on the sofa and other stuff. Ray has a total of \$ 3,000 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 1,500.

(b) 750.

(c) 550.

(d) 1,000.

(e) 2,000.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

35.9   Bob and Ray are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1 + S)M_B$ and Ray's utility function is $U_R(S, M_R) = (3 + S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of \$2,000 to spend on the sofa and other stuff. Ray has a total of \$ 4,000 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 3,000.

(b) 1,333.33.

(c) 1,050.

(d) 2,000.

(e) 4,000.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

35.10   Remember Bonnie and Clyde from your workbook? Suppose that their total profits are $84H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.03H^2$, and $U_C(C_C, H) = C_C - 0.04H^2$, where C_B a and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 700.

(b) 600.

(c) 250.

(d) 350.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

35.11   Remember Bonnie and Clyde from your workbook? Suppose that their total profits are $128H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.02H^2$, and $U_C(C_C, H) = C_C - 0.02H^2$, where C_B a and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 1,700.

(b) 1,600.

(c) 750.

(d) 850.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

35.12   Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 29,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 5,000. How much do they spent on public goods?

(a) 8,000

(b) 16,000

(c) 6,550

(d) 4,000

(e) There is not enough information here to be able to determine the answer.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

35.13   Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 36,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 9,000. How much do they spent on public goods?

(a) 9,000

(b) 18,000

(c) 9,050

(d) 4,500

(e) There is not enough information here to be able to determine the answer.

Topic: Public Goods   Difficulty: 3

% Correct Responses: 0   Discrimination Index: 0

35.1   An otherwise charming island is inhabited by two religious groups who hate each other. The island is presided over by a benevolent monarch who is extremely concerned about envy between groups. He chooses the distribution of income on the island so as to maximize the social welfare function, $W(x, y) = min\{2x - y, 2y - x\}$ where x is the utility of the average member of group X and y is the utility of the average member of group Y. a) If the monarch can accomplish any distribution of utility such that $x + 3y = 24$, diagram the utility possibility frontier and the monarch's isowelfare lines. *b*) What income distribution maximizes W? *c*) Show that an equal increase in both groups income will always please the monarch. d)If the initial incomes are equal, when do increases in both groups' utility reduce W?

Answer: a) see prob 99 *b*)6, 6 *c*) Adding a constant to both x and y increases 2x-y and 2y-x. *d*) when either's income increases by more than twice the increase in the other's.

Chapter 36

Topic: Information   Difficulty: 1
% Correct Responses: 60   Discrimination Index: 13
Correct Answer: True

36.1   An insurance company must be concerned about the possibility that someone will buy fire insurance on a building and then set fire to it. This is an example of moral hazard.

Topic: Information   Difficulty: 1
% Correct Responses: 90   Discrimination Index: 13
Correct Answer: True

36.2   A life insurance company must be concerned about the possibility that the people who buy life insurance may tend to be less healthy than those who do not. This is an example of adverse selection.

Topic: Information   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

36.3   In a market where there is signalling, a separating equilibrium occurs when economic agents separate their actions as consumers from their actions as producers.

Topic: Information   Difficulty: 1
% Correct Responses: 51   Discrimination Index: 34
Correct Answer: True

36.4   In a market where there is a separating equilibrium, different types of agents make different choices of actions.

Topic: Information   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: True

36.5   In a market where there is a pooling equilibrium, different types of agents choose the same action.

Topic: Information   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

36.6   The incentive compatibility constraint requires that incentives be consistent with a consumer's budget constraint.

Topic: Information   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: False

36.7   An example of adverse selection is where someone chooses a car that is not as good as it is claimed to be.

Topic: Information   Difficulty: 2
% Correct Responses: 64   Discrimination Index: 58
Correct Answer: D

36.1   A firm hires two kinds of workers, alphas and betas.The population at large has equal number of alphas and betas. One can't tell a beta from an alpha by looking at her, but an alpha will produce $3,000 worth of output per month and a beta will produce $2,500 worth of output in a month. The firm decides to distinguish alphas from betas by making them pass an examination. For each question that they get right on the exam, alphas have to spend 1/2 hour studying and betas have to spend 1 hour. A worker will be paid $3,000 if she gets at least 60 answers right and $2,500 otherwise. For either type, an hour's studying is as bad as giving up $20 income per month. This scheme leads to:

(a) a separating equilibrium where alphas score 60 and betas score 0.

(b) a pooling equilibrium where alphas score 60 and betas score 0.

(c) a pooling equilibrium where everybody scores 60.

(d) a pooling equilibrium where everybody scores 0.

(e) a separating equilibrium where everybody scores 60.

Topic: Information   Difficulty: 1
% Correct Responses: 38   Discrimination Index: 31
Correct Answer: A

36.2   Ten workers work jointly on a project. All 10 workers are equally skilled. The total value of the output produced is $40 times the sum of the number of hours worked by all 10 workers. Each worker's utility is equal to his income minus the square of the number of hours he works. Each worker is selfish. They have no way of keeping track of any individual's work effort, so they decide to let each person work as long as he wants to and they divide the total value of their output equally among them. How much income will each worker get?

(a) $80

(b) $800

(c) $20

(d) $95

(e) None of the above.

Topic: Information   Difficulty: 1
% Correct Responses: 38   Discrimination Index: 31
Correct Answer: A

36.3   Ten workers work jointly on a project. All 10 workers are equally skilled. The total value of the output produced is $50 times the sum of the number of hours worked by all 10 workers. Each worker's utility is equal to his income minus the square of the number of hours he works. Each worker is selfish. They have no way of keeping track of any individual's work effort, so they decide to let each person work as long as he wants to and they divide the total value of their output equally among them. How much income will each worker get?

(a) $125

(b) $1,250

(c) $25

(d) $140

(e) None of the above.

Topic: Information   Difficulty: 1
% Correct Responses: 74   Discrimination Index: 37
Correct Answer: A

36.4   Which of the following is the best example of adverse selection?

(a) People who face the highest risks are the people most likely to buy insurance against these risks.

(b) The residual claimant will have to bear the consequences of the most adverse outcomes.

(c) An individual can influence the probability that she has an accident.

(d) Items in the most popular styles sell out the quickest.

(e) People sometimes mistakenly choose low quality products.

Topic: Information
% Correct Responses: 34
Correct Answer: C

Difficulty: 2
Discrimination Index: 38

36.5 A certain city has two kinds of workers, alphas and betas. An alpha can produce $100 worth of output per day working for himself. If he works in the local factory, he produces $120 worth of ouput a day. A beta produces $60 worth of ouput per day working for himself and he produces $80 worth of output per day if he works for the local factory. Workers either work for themselves or work in the factory. The factory owner can't tell alphas from betas. He pays a wage equal to the average product of his labor force and he has at least some alphas working for him. Workers are free to choose to work for themselves or the factory, depending on which offers more money.

(a) At least 5/6 of the factory's employees must be alphas.

(b) At least half of the factory's employees must be betas.

(c) At least half of the factory's employees must be alphas.

(d) None of the factory's employees can be betas.

(e) No more than 5/6 of the betas can work in the factory.

Topic: Information
% Correct Responses: 29
Correct Answer: A

Difficulty: 0
Discrimination Index: 25

36.6 Enigma, Ohio, has two kinds of workers, klutzes whose labor is worth $1,000 a month and kandos whose labor is worth $2,500 a month. Enigma has exactly twice as many klutzes as kandos. Klutzes look just like kandos and are accomplished liars, so if you ask, they claim to be kandos. It is too expensive to monitor anybody's work. A professor who likes to talk offers to give free lectures on personal hygiene and macroeconomics. Klutzes and kandos find these lectures excruciatingly dull. An hour's lecture is as bad as losing $50 for a kando and as bad as losing $100 for a klutz. If all other firms pay wages equal to the productivity of an average citizen of Enigma, which of these strategies would be most profitable for a new firm?

(a) Offer a wage of $2000 per month and require its workers to listen to 6 hours of lectures per month.

(b) Offer a wage of $2000 per month and require its workers to listen to 4 hours of lectures per month.

(c) Offer a wage of $1750 per month and require its workers to listen to 6 hours of lectures per month.

(d) Offer a wage of $1660 per month and require its workers to attend 1 hour of lectures per month.

(e) Offer a wage of $2600 per month and require its workers to attend 8 hours of lectures per month.

Topic: Information   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

36.7 Jan's utility function is $C - H^2$, where C is consumption and H is hours worked per day. She can work in the city for 8 hours per day, earning $100 a day. Alternatively, she can rent a small farm from the landlord, Mr. Porksniffer. If she rents the farm, she can work as many hours a day as she wishes. If she works H hours per day, she can sell her crops for a total of $20H$ per day, but she must pay Mr. Porksniffer an annual rent of R. Mr. Porksniffer wants to charge the highest rent R that he can and still be able to get Jan to work for him. What is the highest rent he can charge? A penny less than:

(a) $100 per day.

(b) $64 per day.

(c) $60 per day.

(d) $50 per day.

(e) $36 per day.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

36.8 Suppose that low productivity workers all have marginal products of 10 and high productivity workers have marginal products of 14. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High productivity workers think taking this course is as bad
as a cut in wages of 4 and low productivity workers think it is as bad as a wage cut of 9.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 14 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 12.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 18 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 14 and low productivity workers are paid 12.

36.9   Suppose that low productivity workers all have marginal products of 10 and high productivity workers have marginal products of 13. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High productivity workers think taking this course is as bad
as a cut in wages of 2 and low productivity workers think it is as bad as a wage cut of 7.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 13 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 11.50.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 15 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 13 and low productivity workers are paid 11.50.

36.10   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $4,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $300 for a Klutz and $150 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 4,000 per month and anybody who does not is paid $1000 per month:

(a) if $H < 20$ and $H > 10$.

(b) if $H < 40$ and $H > 10$.

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 16.67$ and $H > 8.33$.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.11   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $5,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $200 for a Klutz and $100 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 5,000 per month and anybody who does not is paid $1000 per month:

(a) if $H < 40$ and $H > 20$.

(b) if $H < 80$ and $H > 20$.

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 35$ and $H > 17.50$.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.12   In Rustbucket, Michigan, there are 200 used cars for sale; half of these cars are good and half of them are lemons. Owners of lemons are willing to sell them for $300. Owners of good used cars are willing to sell them for prices above $900 but will keep them if the price is lower than $900. There is a large number of potential buyers who are willing to pay $500 for a lemon and $1,900 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $1,200.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for $500.

(c) There will be an equilibrium in which lemons sell for $300 and good used cars sell for $900.

(d) There will be an equilibrium in which all used cars sell for $600.

(e) There will be an equilibrium in which lemons sell for $500 and good used cars sell for $1,900.

36.13   In Rustbucket, Michigan, there are 200 used cars for sale; half of these cars are good and half of them are lemons. Owners of lemons are willing to sell them for $300. Owners of good used cars are willing to sell them for prices above $900 but will keep them if the price is lower than $900. There is a large number of potential buyers who are willing to pay $600 for a lemon and $1,300 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $950.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for $600.

(c) There will be an equilibrium in which lemons sell for $300 and good used cars sell for $900.

(d) There will be an equilibrium in which all used cars sell for $600.

(e) There will be an equilibrium in which lemons sell for $600 and good used cars sell for $1,300.

36.14   Suppose that in New Crankshaft, Pennsylvania, the quality distribution of the 5,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they buy it. An owner can either take his car to an appraiser and pay the appraiser $200 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least:

(a) 200.

(b) 2,500.

(c) 600.

(d) 400.

(e) 800.

Topic: Information
% Correct Responses: 0
Difficulty: 0
Discrimination Index: 0
Correct Answer: D

36.15 Suppose that in New Crankshaft, Pennsylvania, the quality distribution of the 4,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they buy it. An owner can either take his car to an appraiser and pay the appraiser $200 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least:

(a) 200.

(b) 2,000.

(c) 600.

(d) 400.

(e) 800.

Topic: Information
% Correct Responses: 77
Difficulty: 0
Discrimination Index: 37
Correct Answer: D

36.16 There are two types of used cars, high-quality and low-quality. Buyers can not tell distinguish the two types until after they have purchased them. Owners of high-quality cars will sell them if the price is $2000 or higher. Owners of low-quality cars will sell them if the price is $1000 or higher. Buyers value a high-quality used car at $2,142 and a low-quality used car at $1200. Suppose that the fraction 0.70 of used cars are of high quality and the fraction 0.30 of used cars are of low quality. In equilibrium

(a) Only high-quality used cars are sold.

(b) Only low-quality used cars are sold.

(c) All used cars are sold.

(d) No used cars are sold.

(e) High-quality used cars will sell for a uniformly higher price than low-quality used cars.

Topic: Information   Difficulty: 0
% Correct Responses: 77   Discrimination Index: 37
Correct Answer: D

36.17   There are two types of used cars, high-quality and low-quality. Buyers can not tell distinguish the two types until after they have purchased them. Owners of high-quality cars will sell them if the price is $2000 or higher. Owners of low-quality cars will sell them if the price is $1000 or higher. Buyers value a high-quality used car at $1,800 and a low-quality used car at $1200. Suppose that the fraction 0.80 of used cars are of high quality and the fraction 0.20 of used cars are of low quality. In equilibrium

(a) Only high-quality used cars are sold.

(b) Only low-quality used cars are sold.

(c) All used cars are sold.

(d) No used cars are sold.

(e) High-quality used cars will sell for a uniformly higher price than low-quality used cars.

Chapter 2

Multiple Choice   Budget Constraint

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

2.1A   In Problem 2.1, if you have an income of \$18 to spend, if commodity 1 costs \$3 per unit, and if commodity 2 costs \$9 per unit, then the equation for your budget line can be written as

(a) $x_1/3 + x_2/9 = 18$.

(b) $(x_1 + x_2)/(12) = 18$.

(c) $x_1 + 3x_2 = 6$.

(d) $4x_1 + 10x_2 = 19$.

(e) $12(x_1 + x_2) = 18$.

Topic: Budget Constraint   Difficulty: 1
% Correct Responses: 86   Discrimination Index: 33
Correct Answer: A

2.2A   In Problem 2.3, if you could exactly afford either 2 units of x and 7 units of y, or 4 units of x and 3 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 11

(b) 7

(c) 15

(d) 6

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 100   Discrimination Index: 0
Correct Answer: B

2.3A   In Problem 2.4, Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 5 and the price of Y rose to 5, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 400

(b) 350

(c) 200

(d) 600

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: C

2.4A   In Problem 2.7, Edmund must pay \$6 each for punk rock video cassettes. If Edmund is paid \$48 per sack for accepting garbage and if his relatives send him an allowance of \$432, then his budget line is described by the equation

(a) $6V = 48G$.

(b) $6V + 48G = 432$.

(c) $6V - 48G = 432$.

(d) $6V = 432 - G$.

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 84   Discrimination Index: 13
Correct Answer: C

2.5A   In Problem 2.10, if in the same amount of time that it takes her to read 40 pages of economics and 30 pages of sociology, Martha could read 10 pages of economics and 90 pages of sociology, then which of these equations describes combinations of pages of economics, E, and sociology, S, that she could read in the time it takes to read 40 pages of economics and 30 pages of sociology?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $2E + S = 110$

(d) $E + S = 100$

(e) All of the above.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

2.6A In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 M.B.A's. Ads in the consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,000 to spend on advertising, if the price of ads in the boring business magazine were 600 and the price of ads in the consumer magazine were 300, then the combinations of recent M.B.A.s and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points

(a) $(2, 500, 3, 000)$ and $(1, 500, 5, 000)$.

(b) $(3, 000, 3, 500)$ and $(1, 500, 6, 000)$.

(c) $(0, 3, 000)$ and $(1, 500, 0)$.

(d) $(3, 000, 0)$ and $(0, 6, 000)$.

(e) $(2, 000, 0)$ and $(0, 5, 000)$.

Topic: Budget Constraint
% Correct Responses: 68
Correct Answer: B

Difficulty: 2
Discrimination Index: 75

2.7A In the economy of Mungo, discussed in Problem 2.12, there is a third person called Ike. Ike has a red income of 82 and a blue income of 25. (Recall that blue ices are 1 bcu (blue currency unit) per unit of ambrosia and 1 bcu p p per unit of bubblegum. Red prices are 2 rcus (red currency units) per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that

(a) it consumes at least 8 units of bubblegum.

(b) it consumes at least 17 units of ambrosia.

(c) it consumes exactly twice as much bubblegum as ambrosia.

(d) it consumes at least 13 units of bubblegum.

(e) it consumes equal amounts of ambrosia and bubblegum.

Topic: Budget Constraint   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

2.1B   In Problem 2.1, if you have an income of \$18 to spend, if commodity 1 costs \$3 per unit, and if commodity 2 costs \$9 per unit, then the equation for your budget line can be written as

(a) $x_1/3 + x_2/9 = 18$.

(b) $(x_1 + x_2)/(12) = 18$.

(c) $x_1 + 3x_2 = 6$.

(d) $4x_1 + 10x_2 = 19$.

(e) $12(x_1 + x_2) = 18$.

Topic: Budget Constraint   Difficulty: 1

% Correct Responses: 86   Discrimination Index: 33

Correct Answer: A

2.2B   In Problem 2.3, if you could exactly afford either 2 units of x and 7 units of y, or 4 units of x and 3 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 11

(b) 7

(c) 15

(d) 6

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0

% Correct Responses: 100   Discrimination Index: 0

Correct Answer: B

2.3B   In Problem 2.4, Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 5 and the price of Y rose to 5, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 400

(b) 350

(c) 200

(d) 600

(e) None of the other options are correct.

Topic: Budget Constraint
% Correct Responses: 88
Correct Answer: C

Difficulty: 0
Discrimination Index: 38

2.4B   In Problem 2.7, Edmund must pay $6 each for punk rock video cassettes. If Edmund is paid $48 per sack for accepting garbage and if his relatives send him an allowance of $432, then his budget line is described by the equation

(a) $6V = 48G$.

(b) $6V + 48G = 432$.

(c) $6V - 48G = 432$.

(d) $6V = 432 - G$.

(e) None of the other options are correct.

Topic: Budget Constraint
% Correct Responses: 84
Correct Answer: C

Difficulty: 0
Discrimination Index: 13

2.5B   In Problem 2.10, if in the same amount of time that it takes her to read 40 pages of economics and 30 pages of sociology, Martha could read 10 pages of economics and 90 pages of sociology, then which of these equations describes combinations of pages of economics, E, and sociology, S, that she could read in the time it takes to read 40 pages of economics and 30 pages of sociology?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $2E + S = 110$

(d) $E + S = 100$

(e) All of the above.

CHAPTER 2   Budget Constraint   624

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

2.6B   In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 M.B.A's. Ads in the consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,000 to spend on advertising, if the price of ads in the boring business magazine were 600 and the price of ads in the consumer magazine were 300, then the combinations of recent M.B.A.s and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points

(a) $(2,500,3,000)$ and $(1,500,5,000)$.

(b) $(3,000,3,500)$ and $(1,500,6,000)$.

(c) $(0,3,000)$ and $(1,500,0)$.

(d) $(3,000,0)$ and $(0,6,000)$.

(e) $(2,000,0)$ and $(0,5,000)$.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 75
Correct Answer: B

2.7B   In the economy of Mungo, discussed in Problem 2.12, there is a third person called Ike. Ike has a red income of 82 and a blue income of 25. (Recall that blue ices are 1 bcu (blue currency unit) per unit of ambrosia and 1 bcu p p per unit of bubblegum. Red prices are 2 rcus (red currency units) per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that

(a) it consumes at least 8 units of bubblegum.

(b) it consumes at least 17 units of ambrosia.

(c) it consumes exactly twice as much bubblegum as ambrosia.

(d) it consumes at least 13 units of bubblegum.

(e) it consumes equal amounts of ambrosia and bubblegum.

Topic: Budget Constraint   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

2.1C   In Problem 2.1, if you have an income of \$40 to spend, if commodity 1 costs \$5 per unit, and if commodity 2 costs \$20 per unit, then the equation for your budget line can be written as

(a) $x_1/5 + x_2/20 = 40$.

(b) $(x_1 + x_2)/(25) = 40$.

(c) $x_1 + 4x_2 = 8$.

(d) $6x_1 + 21x_2 = 41$.

(e) $25(x_1 + x_2) = 40$.

Topic: Budget Constraint   Difficulty: 1

% Correct Responses: 86   Discrimination Index: 33

Correct Answer: A

2.2C   In Problem 2.3, if you could exactly afford either 2 units of x and 15 units of y, or 7 units of x and 5 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 19

(b) 9

(c) 29

(d) 9

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0

% Correct Responses: 100   Discrimination Index: 0

Correct Answer: B

2.3C   In Problem 2.4, Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 5 and the price of Y rose to 10, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 900

(b) 600

(c) 450

(d) 1,350

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: C

2.4C   In Problem 2.7, Edmund must pay \$6 each for punk rock video cassettes. If Edmund is paid \$48 per sack for accepting garbage and if his relatives send him an allowance of \$192, then his budget line is described by the equation

(a) $6V = 48G$.

(b) $6V + 48G = 192$.

(c) $6V - 48G = 192$.

(d) $6V = 192 - G$.

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 84   Discrimination Index: 13
Correct Answer: C

2.5C   In Problem 2.10, if in the same amount of time that it takes her to read 40 pages of economics and 30 pages of sociology, Martha could read 20 pages of economics and 90 pages of sociology, then which of these equations describes combinations of pages of economics, E, and sociology, S, that she could read in the time it takes to read 40 pages of economics and 30 pages of sociology?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $3E + S = 150$

(d) $E + S = 110$

(e) All of the above.

Topic: Budget Constraint
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

2.6C In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 M.B.A's. Ads in the consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,600 to spend on advertising, if the price of ads in the boring business magazine were 600 and the price of ads in the consumer magazine were 300, then the combinations of recent M.B.A.s and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points

(a) $(3,000, 3,600)$ and $(1,800, 6,000)$.

(b) $(3,600, 4,200)$ and $(1,800, 7,200)$.

(c) $(0, 3,600)$ and $(1,800, 0)$.

(d) $(3,600, 0)$ and $(0, 7,200)$.

(e) $(2,400, 0)$ and $(0, 6,000)$.

Topic: Budget Constraint
% Correct Responses: 68
Correct Answer: B

Difficulty: 2
Discrimination Index: 75

2.7C In the economy of Mungo, discussed in Problem 2.12, there is a third person called Ike. Ike has a red income of 80 and a blue income of 30. (Recall that blue ices are 1 bcu (blue currency unit) per unit of ambrosia and 1 bcu p p per unit of bubblegum. Red prices are 2 rcus (red currency units) per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that

(a) it consumes at least 5 units of bubblegum.

(b) it consumes at least 25 units of ambrosia.

(c) it consumes exactly twice as much bubblegum as ambrosia.

(d) it consumes at least 9 units of bubblegum.

(e) it consumes equal amounts of ambrosia and bubblegum.

Topic: Budget Constraint

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

2.1D In Problem 2.1, if you have an income of $80 to spend, if commodity 1 costs $5 per unit, and if commodity 2 costs $20 per unit, then the equation for your budget line can be written as

(a) $x_1/5 + x_2/20 = 80$.

(b) $(x_1 + x_2)/(25) = 80$.

(c) $x_1 + 4x_2 = 16$.

(d) $6x_1 + 21x_2 = 81$.

(e) $25(x_1 + x_2) = 80$.

Topic: Budget Constraint

Difficulty: 1

% Correct Responses: 86

Discrimination Index: 33

Correct Answer: A

2.2D In Problem 2.3, if you could exactly afford either 2 units of x and 13 units of y, or 4 units of x and 5 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 21

(b) 13

(c) 29

(d) 6

(e) None of the other options are correct.

Topic: Budget Constraint

Difficulty: 0

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: B

2.3D In Problem 2.4, Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 3 and the price of Y rose to 8, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 500

(b) 300

(c) 250

(d) 750

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: C

2.4D   In Problem 2.7, Edmund must pay \$6 each for punk rock video cassettes. If Edmund is paid \$36 per sack for accepting garbage and if his relatives send him an allowance of \$144, then his budget line is described by the equation

(a) $6V = 36G$.

(b) $6V + 36G = 144$.

(c) $6V - 36G = 144$.

(d) $6V = 144 - G$.

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 84   Discrimination Index: 13
Correct Answer: C

2.5D   In Problem 2.10, if in the same amount of time that it takes her to read 40 pages of economics and 30 pages of sociology, Martha could read 10 pages of economics and 180 pages of sociology, then which of these equations describes combinations of pages of economics, E, and sociology, S, that she could read in the time it takes to read 40 pages of economics and 30 pages of sociology?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $5E + S = 230$

(d) $E + S = 190$

(e) All of the above.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

2.6D   In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 M.B.A's. Ads in the consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $4,550 to spend on advertising, if the price of ads in the boring business magazine were 700 and the price of ads in the consumer magazine were 350, then the combinations of recent M.B.A.s and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points

(a) $(3,250,3,900)$ and $(1,950,6,500)$.

(b) $(3,900,4,550)$ and $(1,950,7,800)$.

(c) $(0,3,900)$ and $(1,950,0)$.

(d) $(3,900,0)$ and $(0,7,800)$.

(e) $(2,600,0)$ and $(0,6,500)$.

Topic: Budget Constraint   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 75
Correct Answer: B

2.7D   In the economy of Mungo, discussed in Problem 2.12, there is a third person called Ike. Ike has a red income of 84 and a blue income of 20. (Recall that blue ices are 1 bcu (blue currency unit) per unit of ambrosia and 1 bcu p p per unit of bubblegum. Red prices are 2 rcus (red currency units) per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that

(a) it consumes at least 11 units of bubblegum.

(b) it consumes at least 9 units of ambrosia.

(c) it consumes exactly twice as much bubblegum as ambrosia.

(d) it consumes at least 21 units of bubblegum.

(e) it consumes equal amounts of ambrosia and bubblegum.

Multiple Choice   Budget Constraint

2.1E   In Problem 2.1, if you have an income of \$24 to spend, if commodity 1 costs \$2 per unit, and if commodity 2 costs \$8 per unit, then the equation for your budget line can be written as

(a) $x_1/2 + x_2/8 = 24$.

(b) $(x_1 + x_2)/(10) = 24$.

(c) $x_1 + 4x_2 = 12$.

(d) $3x_1 + 9x_2 = 25$.

(e) $10(x_1 + x_2) = 24$.

2.2E   In Problem 2.3, if you could exactly afford either 3 units of x and 24 units of y, or 7 units of x and 8 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 36

(b) 20

(c) 52

(d) 10

(e) None of the other options are correct.

2.3E   In Problem 2.4, Murphy used to consume 100 units of X and 50 units of Y when the price of X was 2 and the price of Y was 4. If the price of X rose to 3 and the price of Y rose to 5, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 200

(b) 150

(c) 100

(d) 300

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: C

2.4E   In Problem 2.7, Edmund must pay \$6 each for punk rock video cassettes. If Edmund is paid \$24 per sack for accepting garbage and if his relatives send him an allowance of \$168, then his budget line is described by the equation

(a) $6V = 24G$.

(b) $6V + 24G = 168$.

(c) $6V - 24G = 168$.

(d) $6V = 168 - G$.

(e) None of the other options are correct.

Topic: Budget Constraint   Difficulty: 0
% Correct Responses: 84   Discrimination Index: 13
Correct Answer: C

2.5E   In Problem 2.10, if in the same amount of time that it takes her to read 40 pages of economics and 30 pages of sociology, Martha could read 20 pages of economics and 110 pages of sociology, then which of these equations describes combinations of pages of economics, E, and sociology, S, that she could read in the time it takes to read 40 pages of economics and 30 pages of sociology?

(a) $E + S = 70$

(b) $E/2 + S = 50$

(c) $4E + S = 190$

(d) $E + S = 130$

(e) All of the above.

Topic: Budget Constraint

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

2.6E   In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 M.B.A.'s. Ads in the consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,850 to spend on advertising, if the price of ads in the boring business magazine were 700 and the price of ads in the consumer magazine were 350, then the combinations of recent M.B.A.s and lawyers with hot tubs whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points

(a) $(2,750,3,300)$ and $(1,650,5,500)$.

(b) $(3,300,3,850)$ and $(1,650,6,600)$.

(c) $(0,3,300)$ and $(1,650,0)$.

(d) $(3,300,0)$ and $(0,6,600)$.

(e) $(2,200,0)$ and $(0,5,500)$.

Topic: Budget Constraint

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 75

Correct Answer: B

2.7E   In the economy of Mungo, discussed in Problem 2.12, there is a third person called Ike. Ike has a red income of 58 and a blue income of 15. (Recall that blue ices are 1 bcu (blue currency unit) per unit of ambrosia and 1 bcu p p per unit of bubblegum. Red prices are 2 rcus (red currency units) per unit of ambrosia and 6 rcus per unit of bubblegum. You have to pay twice for what you buy, once in red currency, once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that

(a) it consumes at least 7 units of bubblegum.

(b) it consumes at least 8 units of ambrosia.

(c) it consumes exactly twice as much bubblegum as ambrosia.

(d) it consumes at least 16 units of bubblegum.

(e) it consumes equal amounts of ambrosia and bubblegum.

Chapter 3

Topic: Preferences   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 33
Correct Answer: C

3.1A   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(9, 17)$ to the following bundle

(a) $(17, 9)$.

(b) $(10, 16)$.

(c) $(11, 11)$.

(d) all three of these bundles.

(e) none of these bundles.

Topic: Preferences   Difficulty: 2
% Correct Responses: 90   Discrimination Index: 22
Correct Answer: C

3.2A   In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$, where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(1, 13)$?

(a) $-1/13$

(b) $-13/1$

(c) -2

(d) -14

(e) -1

Topic: Preferences

% Correct Responses: 62

Correct Answer: A

Difficulty: 2

Discrimination Index: 22

3.3A   In Problem 3.8, Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 70 on her first midterm and 80 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(70, 80)$. Therefore it must be that

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) there is not enough information to tell whose class it could or couldn't be

Topic: Preferences

% Correct Responses: 79

Correct Answer: D

Difficulty: 2

Discrimination Index: 0

3.4A   In Problem 3.9, if we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 24 avocados and 30 grapefruits and another bundle that has 34 avocados and

(a) 26 grapefruits.

(b) 28 grapefruits.

(c) 18 grapefruits.

(d) 22 grapefruits.

(e) 24 grapefruits.

Topic: Preferences   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 63
Correct Answer: B

3.5A   In Problem 3.12, recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7) - -that$ is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (4, 5)$ also passes through

(a) $(6, 3)$.

(b) the points $(2, 3)$, $(6, 7)$, and $(4, 9)$.

(c) $(2, 7)$.

(d) the points $(4, 7)$, $(2, 5)$, and $(2, 9)$.

(e) None of the other options are correct.

Topic: Preferences   Difficulty: 0
% Correct Responses: 52   Discrimination Index: 38
Correct Answer: E

3.6A   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(8, 15)$ to the following bundle:

(a) $(15, 8)$

(b) $(9, 14)$

(c) $(14, 14)$

(d) more than one of these options are correct.

(e) none of the above are correct.

Topic: Preferences
% Correct Responses: 83
Correct Answer: C

Difficulty: 1
Discrimination Index: 33

3.1B   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(9, 19)$ to the following bundle

(a) $(19, 9)$.

(b) $(10, 18)$.

(c) $(12, 15)$.

(d) all three of these bundles.

(e) none of these bundles.

Topic: Preferences
% Correct Responses: 90
Correct Answer: C

Difficulty: 2
Discrimination Index: 22

3.2B   In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$, where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(9, 14)$?

(a) $-9/14$

(b) $-14/9$

(c) -0.67

(d) -17

(e) -3

Topic: Preferences

% Correct Responses: 62

Correct Answer: A

Difficulty: 2

Discrimination Index: 22

3.3B   In Problem 3.8, Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 70 on her first midterm and 60 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(70, 60)$. Therefore it must be that

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) there is not enough information to tell whose class it could or couldn't be

Topic: Preferences

% Correct Responses: 79

Correct Answer: D

Difficulty: 2

Discrimination Index: 0

3.4B   In Problem 3.9, if we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 24 avocados and 36 grapefruits and another bundle that has 32 avocados and

(a) 28 grapefruits.

(b) 32 grapefruits.

(c) 24 grapefruits.

(d) 26 grapefruits.

(e) 27 grapefruits.

Topic: Preferences   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 63
Correct Answer: B

3.5B   In Problem 3.12, recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2,7)$ − −*that* is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (3,6)$ also passes through

(a) $(4,5)$.

(b) the points $(2,5)$, $(4,7)$, and $(3,8)$.

(c) $(2,7)$.

(d) the points $(3,7)$, $(2,6)$, and $(2,8)$.

(e) None of the other options are correct.

Topic: Preferences   Difficulty: 0
% Correct Responses: 52   Discrimination Index: 38
Correct Answer: E

3.6B   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(7, 12)$ to the following bundle:

(a) $(12,7)$

(b) $(8,11)$

(c) $(13,8)$

(d) more than one of these options are correct.

(e) none of the above are correct.

Topic: Preferences   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 33
Correct Answer: C

3.1C   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(7, 14)$ to the following bundle

(a) $(14, 7)$.

(b) $(8, 13)$.

(c) $(13, 8)$.

(d) all three of these bundles.

(e) none of these bundles.

Topic: Preferences   Difficulty: 2
% Correct Responses: 90   Discrimination Index: 22
Correct Answer: C

3.2C   In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$, where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(9, 16)$?

(a) $-9/16$

(b) $-16/9$

(c) -0.67

(d) -19

(e) -3

Topic: Preferences

Difficulty: 2

% Correct Responses: 62

Discrimination Index: 22

Correct Answer: A

3.3C   In Problem 3.8, Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 30 on her first midterm and 60 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(30, 60)$. Therefore it must be that

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) there is not enough information to tell whose class it could or couldn't be

Topic: Preferences

Difficulty: 2

% Correct Responses: 79

Discrimination Index: 0

Correct Answer: D

3.4C   In Problem 3.9, if we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 15 avocados and 30 grapefruits and another bundle that has 24 avocados and

(a) 20 grapefruits.

(b) 25 grapefruits.

(c) 16 grapefruits.

(d) 18 grapefruits.

(e) 19 grapefruits.

Topic: Preferences
% Correct Responses: 68
Correct Answer: B

Difficulty: 2
Discrimination Index: 63

3.5C   In Problem 3.12, recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7) --that$ is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (5, 4)$ also passes through

(a) $(8, 1)$.

(b) the points $(2, 1)$, $(8, 7)$, and $(5, 10)$.

(c) $(2, 7)$.

(d) the points $(5, 7)$, $(2, 4)$, and $(2, 10)$.

(e) None of the other options are correct.

Topic: Preferences
% Correct Responses: 52
Correct Answer: E

Difficulty: 0
Discrimination Index: 38

3.6C   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(9, 16)$ to the following bundle:

(a) $(16, 9)$

(b) $(10, 15)$

(c) $(15, 13)$

(d) more than one of these options are correct.

(e) none of the above are correct.

Topic: Preferences
% Correct Responses: 83
Correct Answer: C

Difficulty: 1
Discrimination Index: 33

3.1D In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(7, 12)$ to the following bundle

(a) $(12, 7)$.

(b) $(8, 11)$.

(c) $(13, 8)$.

(d) all three of these bundles.

(e) none of these bundles.

Topic: Preferences
% Correct Responses: 90
Correct Answer: C

Difficulty: 2
Discrimination Index: 22

3.2D In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$, where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(25, 12)$?

(a) $-25/12$

(b) $-12/25$

(c) -0.40

(d) -17

(e) -5

Topic: Preferences

Difficulty: 2

% Correct Responses: 62

Discrimination Index: 22

Correct Answer: A

3.3D In Problem 3.8, Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 20 on her first midterm and 40 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(20, 40)$. Therefore it must be that

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) there is not enough information to tell whose class it could or couldn't be

Topic: Preferences

Difficulty: 2

% Correct Responses: 79

Discrimination Index: 0

Correct Answer: D

3.4D In Problem 3.9, if we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 26 avocados and 38 grapefruits and another bundle that has 34 avocados and

(a) 30 grapefruits.

(b) 34 grapefruits.

(c) 26 grapefruits.

(d) 28 grapefruits.

(e) 29 grapefruits.

Topic: Preferences

Difficulty: 2

% Correct Responses: 68

Discrimination Index: 63

Correct Answer: B

3.5D   In Problem 3.12, recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7)$ — —*that* is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (5, 4)$ also passes through

(a) $(8, 1)$.

(b) the points $(2, 1)$, $(8, 7)$, and $(5, 10)$.

(c) $(2, 7)$.

(d) the points $(5, 7)$, $(2, 4)$, and $(2, 10)$.

(e) None of the other options are correct.

Topic: Preferences

Difficulty: 0

% Correct Responses: 52

Discrimination Index: 38

Correct Answer: E

3.6D   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(7, 15)$ to the following bundle:

(a) $(15, 7)$

(b) $(8, 14)$

(c) $(12, 12)$

(d) more than one of these options are correct.

(e) none of the above are correct.

Topic: Preferences   Difficulty: 1
% Correct Responses: 83   Discrimination Index: 33
Correct Answer: C

3.1E   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(10, 16)$ to the following bundle

(a) $(16, 10)$.

(b) $(11, 15)$.

(c) $(14, 13)$.

(d) all three of these bundles.

(e) none of these bundles.

Topic: Preferences   Difficulty: 2
% Correct Responses: 90   Discrimination Index: 22
Correct Answer: C

3.2E   In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = constant - 4x_1^{1/2}$, where larger constants correspond to higher indifference curves. If good 1 is drawn on the horizontal axis and good 2 on the vertical axis, what is the slope of Ambrose's indifference curve when his consumption bundle is $(49, 11)$?

(a) $-49/11$

(b) $-11/49$

(c) -0.29

(d) -18

(e) -7

Topic: Preferences

Difficulty: 2

% Correct Responses: 62

Discrimination Index: 22

Correct Answer: A

3.3E   In Problem 3.8, Nancy Lerner is taking a course from Professor Goodheart who will count only her best midterm grade and from Professor Stern who will count only her worst midterm grade. In one of her classes, Nancy has scores of 70 on her first midterm and 40 on her second midterm. When the first midterm score is measured on the horizontal axis and her second midterm score on the vertical, her indifference curve has a slope of zero at the point $(70, 40)$. Therefore it must be that

(a) this class could be Professor Goodheart's, but couldn't be Professor Stern's.

(b) this class could be Professor Stern's, but couldn't be Professor Goodheart's.

(c) this class couldn't be either Goodheart's or Stern's.

(d) this class could be either Goodheart's or Stern's.

(e) there is not enough information to tell whose class it could or couldn't be

Topic: Preferences

Difficulty: 2

% Correct Responses: 79

Discrimination Index: 0

Correct Answer: D

3.4E   In Problem 3.9, if we graph Mary Granola's indifference curves with avocados on the horizontal axis and grapefruits on the vertical axis, then whenever she has more grapefruits than avocados, the slope of her indifference curve is -2. Whenever she has more avocados than grapefruits, the slope is $-1/2$. Mary would be indifferent between a bundle with 9 avocados and 15 grapefruits and another bundle that has 15 avocados and

(a) 11 grapefruits.

(b) 13 grapefruits.

(c) 7 grapefruits.

(d) 9 grapefruits.

(e) 10 grapefruits.

Topic: Preferences   Difficulty: 2
% Correct Responses: 68   Discrimination Index: 63
Correct Answer: B

3.5E   In Problem 3.12, recall that Tommy Twit's mother measures the departure of any bundle from her favorite bundle for Tommy by the sum of the absolute values of the differences. Her favorite bundle for Tommy is $(2, 7)$ − −*that* is, 2 cookies and 7 glasses of milk. Tommy's mother's indifference curve that passes through the point $(c, m) = (4, 5)$ also passes through

(a) $(6, 3)$.

(b) the points $(2, 3)$, $(6, 7)$, and $(4, 9)$.

(c) $(2, 7)$.

(d) the points $(4, 7)$, $(2, 5)$, and $(2, 9)$.

(e) None of the other options are correct.

Topic: Preferences   Difficulty: 0
% Correct Responses: 52   Discrimination Index: 38
Correct Answer: E

3.6E   In Problem 3.1, Charlie's indifference curves have the equation $x_B = constant/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle $(6, 14)$ to the following bundle:

(a) $(14, 6)$

(b) $(7, 13)$

(c) $(10, 13)$

(d) more than one of these options are correct.

(e) none of the above are correct.

Chapter 4

Multiple Choice   Utility

Topic: Utility

% Correct Responses: 0

Correct Answer: E

Difficulty: 1

Discrimination Index: 0

4.1A   In Problem 4.1, Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 16 apples and 12 bananas will also pass through the point where he consumes 2 apples and

(a) 16 bananas.

(b) 32 bananas.

(c) 98 bananas.

(d) 104 bananas.

(e) 96 bananas.

Topic: Utility

% Correct Responses: 86

Correct Answer: B

Difficulty: 0

Discrimination Index: 33

4.2A   In Problem 4.1, Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 30 apples and 120 bananas, then if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is

(a) -31.

(b) -4.

(c) -8.

(d) $-1/4$.

(e) $-1/8$.

Topic: Utility   Difficulty: 2
% Correct Responses: 76   Discrimination Index: 44
Correct Answer: C

4.3A   In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose were initially consuming 4 units of nuts (good 1) and 20 units of berries (good 2), then what is the largest number of berries that he would be willing to give up in return for an additional 5 units of nuts.

(a) 3

(b) 23

(c) 4

(d) 2

(e) 1

Topic: Utility   Difficulty: 2
% Correct Responses: 72   Discrimination Index: 67
Correct Answer: C

4.4A   Joe Bob, from Problem 4.12 has a cousin Wilfred who consume goods 1 and 2. Wilfred thinks that 2 units of good 1 is always a perfect substitute for 3 units of good 2. Which of the following utility functions is the only one that would NOT represent Wilfred's preferences?

(a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1000$.

(b) $U(x_1, x_2) = 9x_1^2 + 12x_1x_2 + 4x_2^2$.

(c) $U(x_1, x_2) = Min\{3x_1, 2x_2\}$.

(d) $U(x_1, x_2) = 30x_1 + 20x_2 - 10,000$.

(e) More than one of the above does NOT represent Wilfred's preferences.

Topic: Utility   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

4.5A   In Problem 4.7, Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 3 *dollar(s)* per unit and the price of french fries is 3 dollars per unit, then Harry will

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 86   Discrimination Index: 22
Correct Answer: C

4.6A   Phil Rupp, from Problem 4.4, has a sister Ethel who has the utility function $U(x,y) = min\{5x + y, 6y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 5x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 5y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 5y$.

Multiple Choice   Utility

4.1B   In Problem 4.1, Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 16 apples and 16 bananas will also pass through the point where he consumes 2 apples and

(a) 16 bananas.

(b) 32 bananas.

(c) 130 bananas.

(d) 138 bananas.

(e) 128 bananas.

4.2B   In Problem 4.1, Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 20 apples and 80 bananas, then if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is

(a) −21.

(b) −4.

(c) −8.

(d) −1/4.

(e) −1/8.

Topic: Utility

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 44

Correct Answer: C

4.3B   In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose were initially consuming 36 units of nuts (good 1) and 28 units of berries (good 2), then what is the largest number of berries that he would be willing to give up in return for an additional 85 units of nuts.

(a) 11

(b) 39

(c) 20

(d) 10

(e) 5

Topic: Utility

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 67

Correct Answer: C

4.4B   Joe Bob, from Problem 4.12 has a cousin Norbert who consume goods 1 and 2. Norbert thinks that 3 units of good 1 is always a perfect substitute for 4 units of good 2. Which of the following utility functions is the only one that would NOT represent Norbert's preferences?

(a) $U(x_1, x_2) = 4x_1 + 3x_2 + 1000$.

(b) $U(x_1, x_2) = 16x_1^2 + 24x_1x_2 + 9x_2^2$.

(c) $U(x_1, x_2) = Min\{4x_1, 3x_2\}$.

(d) $U(x_1, x_2) = 40x_1 + 30x_2 - 10,000$.

(e) More than one of the above does NOT represent Norbert's preferences.

Topic: Utility

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

4.5B   In Problem 4.7, Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 4 *dollar(s)* per unit and the price of french fries is 3 dollars per unit, then Harry will

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

4.6B   Phil Rupp, from Problem 4.4, has a sister Ethel who has the utility function $U(x, y) = min\{4x + y, 5y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 4x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 4y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 4y$.

Topic: Utility

% Correct Responses: 0

Correct Answer: E

Difficulty: 1

Discrimination Index: 0

4.1C In Problem 4.1, Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 14 apples and 70 bananas will also pass through the point where he consumes 2 apples and

(a) 49 bananas.

(b) 98 bananas.

(c) 492 bananas.

(d) 502 bananas.

(e) 490 bananas.

Topic: Utility

% Correct Responses: 86

Correct Answer: B

Difficulty: 0

Discrimination Index: 33

4.2C In Problem 4.1, Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 40 apples and 120 bananas, then if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is

(a) -41.

(b) -3.

(c) -6.

(d) $-1/3$.

(e) $-1/6$.

Topic: Utility

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 44

Correct Answer: C

4.3C   In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose were initially consuming 49 units of nuts (good 1) and 16 units of berries (good 2), then what is the largest number of berries that he would be willing to give up in return for an additional 51 units of nuts.

(a) 10

(b) 26

(c) 12

(d) 6

(e) 3

Topic: Utility

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 67

Correct Answer: C

4.4C   Joe Bob, from Problem 4.12 has a cousin Lawrence who consume goods 1 and 2. Lawrence thinks that 2 units of good 1 is always a perfect substitute for 3 units of good 2. Which of the following utility functions is the only one that would NOT represent Lawrence's preferences?

(a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1000$.

(b) $U(x_1, x_2) = 9x_1^2 + 12x_1x_2 + 4x_2^2$.

(c) $U(x_1, x_2) = Min\{3x_1, 2x_2\}$.

(d) $U(x_1, x_2) = 30x_1 + 20x_2 - 10,000$.

(e) More than one of the above does NOT represent Lawrence's preferences.

Topic: Utility

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

4.5C   In Problem 4.7, Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 4 *dollar(s)* per unit and the price of french fries is 2 dollars per unit, then Harry will

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 86   Discrimination Index: 22
Correct Answer: C

4.6C   Phil Rupp, from Problem 4.4, has a sister Ethel who has the utility function $U(x,y) = min\{4x + y, 5y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 4x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 4y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 4y$.

Multiple Choice Utility

4.1D   In Problem 4.1, Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 10 apples and 50 bananas will also pass through the point where he consumes 2 apples and

(a) 25 bananas.

(b) 50 bananas.

(c) 252 bananas.

(d) 262 bananas.

(e) 250 bananas.

4.2D   In Problem 4.1, Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 30 apples and 60 bananas, then if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is

(a) -31.

(b) -2.

(c) -4.

(d) $-1/2$.

(e) $-1/4$.

Topic: Utility

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 44

Correct Answer: C

4.3D In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose were initially consuming 16 units of nuts (good 1) and 30 units of berries (good 2), then what is the largest number of berries that he would be willing to give up in return for an additional 33 units of nuts.

(a) 7

(b) 37

(c) 12

(d) 6

(e) 3

Topic: Utility

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 67

Correct Answer: C

4.4D Joe Bob, from Problem 4.12 has a cousin Ed who consume goods 1 and 2. Ed thinks that 3 units of good 1 is always a perfect substitute for 4 units of good 2. Which of the following utility functions is the only one that would NOT represent Ed's preferences?

(a) $U(x_1, x_2) = 4x_1 + 3x_2 + 1000$.

(b) $U(x_1, x_2) = 16x_1^2 + 24x_1x_2 + 9x_2^2$.

(c) $U(x_1, x_2) = Min\{4x_1, 3x_2\}$.

(d) $U(x_1, x_2) = 40x_1 + 30x_2 - 10,000$.

(e) More than one of the above does NOT represent Ed's preferences.

Topic: Utility

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

4.5D In Problem 4.7, Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 2 *dollar(s)* per unit and the price of french fries is 4 dollars per unit, then Harry will

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 86   Discrimination Index: 22
Correct Answer: C

4.6D   Phil Rupp, from Problem 4.4, has a sister Ethel who has the utility function $U(x, y) = min\{5x + y, 6y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 5x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 5y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 5y$.

Topic: Utility

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

4.1E In Problem 4.1, Charlie has the utility function $U(x_A, x_B) = x_A x_B$. His indifference curve passing through 16 apples and 15 bananas will also pass through the point where he consumes 4 apples and

(a) 12 bananas.

(b) 24 bananas.

(c) 64 bananas.

(d) 69 bananas.

(e) 60 bananas.

Topic: Utility

Difficulty: 0

% Correct Responses: 86

Discrimination Index: 33

Correct Answer: B

4.2E In Problem 4.1, Charlie's utility function is $U(A, B) = AB$ where A and B are the numbers of apples and bananas, respectively, that he consumes. When Charlie is consuming 25 apples and 125 bananas, then if we put apples on the horizontal axis and bananas on the vertical axis, the slope of his indifference curve at his current consumption is

(a) -26.

(b) -5.

(c) -10.

(d) $-1/5$.

(e) $-1/10$.

Topic: Utility

Difficulty: 2

% Correct Responses: 76

Discrimination Index: 44

Correct Answer: C

4.3E In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose were initially consuming 9 units of nuts (good 1) and 21 units of berries (good 2), then what is the largest number of berries that he would be willing to give up in return for an additional 16 units of nuts.

(a) 5

(b) 26

(c) 8

(d) 4

(e) 2

Topic: Utility

Difficulty: 2

% Correct Responses: 72

Discrimination Index: 67

Correct Answer: C

4.4E Joe Bob, from Problem 4.12 has a cousin Pete who consume goods 1 and 2. Pete thinks that 3 units of good 1 is always a perfect substitute for 4 units of good 2. Which of the following utility functions is the only one that would NOT represent Pete's preferences?

(a) $U(x_1, x_2) = 4x_1 + 3x_2 + 1000$.

(b) $U(x_1, x_2) = 16x_1^2 + 24x_1x_2 + 9x_2^2$.

(c) $U(x_1, x_2) = Min\{4x_1, 3x_2\}$.

(d) $U(x_1, x_2) = 40x_1 + 30x_2 - 10,000$.

(e) More than one of the above does NOT represent Pete's preferences.

Topic: Utility

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

4.5E In Problem 4.7, Harry Mazzola has the utility function $U(x_1, x_2) = min\{x_1 + 2x_2, 2x_1 + x_2\}$. He has \$40 to spend on corn chips and french fries, if the price of corn chips is 1 *dollar(s)* per unit and the price of french fries is 3 dollars per unit, then Harry will

(a) definitely spend all of his income on corn chips.

(b) definitely spend all of his income on french fries.

(c) consume at least as much corn chips as french fries, but might consume both.

(d) consume at least as much french fries as corn chips, but might consume both.

(e) consume equal amounts of french fries and corn chips.

Topic: Utility   Difficulty: 0
% Correct Responses: 86   Discrimination Index: 22
Correct Answer: C

4.6E   Phil Rupp, from Problem 4.4, has a sister Ethel who has the utility function $U(x, y) = min\{2x + y, 3y\}$. Where x is measured on the horizontal axis and y on the vertical axis, her indifference curves

(a) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $y = 2x$.

(b) consist of a vertical line segment and a horizontal line segment which meet in a kink along the line $x = 2y$.

(c) consist of a horizontal line segment and a negatively sloped line segment which meet in a kink along the line $x = y$.

(d) consist of a positively sloped line segment and a negatively sloped line segment which meet along the line $x = y$.

(e) consist of a horizontal line segment and a positively sloped line segment which meet in a kink along the line $x = 2y$.

Chapter 5

Multiple Choice   Choice

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.1A   In Problem 5.1, Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 320, how many units of bananas would he consume if he chooses the bundle that maximizes his utility subject to his budget constraint?

(a) 80

(b) 40

(c) 160

(d) 16

(e) 240

Topic: Choice   Difficulty: 0
% Correct Responses: 100   Discrimination Index: 0
Correct Answer: E

5.2A   Charlie's utility function is $U(x_A, x_B) = x_A x_B$. If Charlie's income were 40, the price of apples were 4 and the price of bananas were 6, how many apples would there be in the best bundle that Charlie could afford?

(a) 10

(b) 12

(c) 8

(d) 9

(e) 5

Topic: Choice

Difficulty: 0

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: D

5.3A In Problem 5.2, Clara's utility function is $U(X, Y) = (X+2)(Y+1)$. If Clara's marginal rate of substitution is -2 and she is consuming 11 units of Good X, how many units of good Y is she consuming?

(a) 2

(b) 26

(c) 13

(d) 25

(e) 5

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

5.4A In Problem 5.3, Ambrose's utility is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 3, and his income is 96, how many units of NUTS will Ambrose choose.

(a) 20

(b) 36

(c) 72

(d) 39

(e) 18

Topic: Choice

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 25

Correct Answer: B

5.5A Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 3, and his income is 51, how many units of BERRIES will Ambrose choose?

(a) 37

(b) 5

(c) 10

(d) 4

(e) 8

Topic: Choice   Difficulty: 0
% Correct Responses: 76   Discrimination Index: 63
Correct Answer: D

5.6A   In Problem 5.6, Elmer's utility function is $U(x,y) = min\{x, y^2\}$. If the price of x is 15, the price of y is 25, and Elmer chooses to consume 7 units of Y, what must Elmer's income be?

(a) 1,820

(b) 280

(c) 1,010

(d) 910

(e) There is not enough information to tell.

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.7A   In Problem 5.7, what bundle would Linus choose if the price of x is 2, the price of y is 4 and his income is 24?

(a) $(0,6)$

(b) $(12,0)$

(c) $(12,6)$

(d) $(6,3)$

(e) $(6,6)$

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

5.1B In Problem 5.1, Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 80, how many units of bananas would he consume if he chooses the bundle that maximizes his utility subject to his budget constraint?

(a) 20

(b) 10

(c) 40

(d) 4

(e) 60

Topic: Choice

Difficulty: 0

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: E

5.2B Charlie's utility function is $U(x_A, x_B) = x_A x_B$. If Charlie's income were 40, the price of apples were 3 and the price of bananas were 2, how many apples would there be in the best bundle that Charlie could afford?

(a) 13.33

(b) 9

(c) 6

(d) 7

(e) 6.67

Topic: Choice   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: D

5.3B   In Problem 5.2, Clara's utility function is $U(X,Y) = (X+2)(Y+1)$. If Clara's marginal rate of substitution is -6 and she is consuming 10 units of Good X, how many units of good Y is she consuming?

(a) 6

(b) 72

(c) 16

(d) 71

(e) 13

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.4B   In Problem 5.3, Ambrose's utility is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 8, and his income is 304, how many units of NUTS will Ambrose choose.

(a) 6

(b) 256

(c) 512

(d) 259

(e) 128

Topic: Choice   Difficulty: 0
% Correct Responses: 92   Discrimination Index: 25
Correct Answer: B

5.5B   Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 9, and his income is 459, how many units of BERRIES will Ambrose choose?

(a) 325

(b) 15

(c) 30

(d) 14

(e) 18

Topic: Choice   Difficulty: 0

% Correct Responses: 76   Discrimination Index: 63

Correct Answer: D

5.6B   In Problem 5.6, Elmer's utility function is $U(x,y) = min\{x, y^2\}$. If the price of x is 20, the price of y is 15, and Elmer chooses to consume 3 units of Y, what must Elmer's income be?

(a) 450

(b) 105

(c) 325

(d) 225

(e) There is not enough information to tell.

Topic: Choice   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

5.7A   In Problem 5.7, what bundle would Linus choose if the price of x is 2, the price of y is 4 and his income is 24?

(a) $(0,6)$

(b) $(12,0)$

(c) $(12,6)$

(d) $(6,3)$

(e) $(6,6)$

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

5.1C In Problem 5.1, Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 240, how many units of bananas would he consume if he chooses the bundle that maximizes his utility subject to his budget constraint?

(a) 60

(b) 30

(c) 120

(d) 12

(e) 180

Topic: Choice

Difficulty: 0

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: E

5.2C Charlie's utility function is $U(x_A, x_B) = x_A x_B$. If Charlie's income were 40, the price of apples were 3 and the price of bananas were 7, how many apples would there be in the best bundle that Charlie could afford?

(a) 13.33

(b) 9

(c) 6

(d) 7

(e) 6.67

Topic: Choice   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: D

5.3C   In Problem 5.2, Clara's utility function is $U(X, Y) = (X + 2)(Y + 1)$. If Clara's marginal rate of substitution is -6 and she is consuming 13 units of Good X, how many units of good Y is she consuming?

(a) 6

(b) 90

(c) 19

(d) 89

(e) 13

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.4C   In Problem 5.3, Ambrose's utility is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 2, and his income is 44, how many units of NUTS will Ambrose choose.

(a) 14

(b) 16

(c) 32

(d) 19

(e) 8

Topic: Choice   Difficulty: 0
% Correct Responses: 92   Discrimination Index: 25
Correct Answer: B

5.5C   Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 7, and his income is 336, how many units of BERRIES will Ambrose choose?

(a) 197

(b) 20

(c) 40

(d) 19

(e) 23

Topic: Choice   Difficulty: 0
% Correct Responses: 76   Discrimination Index: 63
Correct Answer: D

5.6C   In Problem 5.6, Elmer's utility function is $U(x,y) = min\{x, y^2\}$. If the price of x is 10, the price of y is 25, and Elmer chooses to consume 2 units of Y, what must Elmer's income be?

(a) 180

(b) 70

(c) 190

(d) 90

(e) There is not enough information to tell.

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.7A   In Problem 5.7, what bundle would Linus choose if the price of x is 2, the price of y is 4 and his income is 24?

(a) $(0,6)$

(b) $(12,0)$

(c) $(12,6)$

(d) $(6,3)$

(e) $(6,6)$

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

5.1D In Problem 5.1, Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 320, how many units of bananas would he consume if he chooses the bundle that maximizes his utility subject to his budget constraint?

(a) 80

(b) 40

(c) 160

(d) 16

(e) 240

Topic: Choice

Difficulty: 0

% Correct Responses: 100

Discrimination Index: 0

Correct Answer: E

5.2D Charlie's utility function is $U(x_A, x_B) = x_A x_B$. If Charlie's income were 40, the price of apples were 5 and the price of bananas were 7, how many apples would there be in the best bundle that Charlie could afford?

(a) 8

(b) 15

(c) 10

(d) 11

(e) 4

Topic: Choice   Difficulty: 0
% Correct Responses: 88   Discrimination Index: 38
Correct Answer: D

5.3D   In Problem 5.2, Clara's utility function is $U(X, Y) = (X+2)(Y+1)$. If Clara's marginal rate of substitution is -3 and she is consuming 14 units of Good X, how many units of good Y is she consuming?

(a) 3

(b) 48

(c) 17

(d) 47

(e) 7

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

5.4D   In Problem 5.3, Ambrose's utility is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 8, and his income is 272, how many units of NUTS will Ambrose choose.

(a) 2

(b) 256

(c) 512

(d) 259

(e) 128

Topic: Choice   Difficulty: 0
% Correct Responses: 92   Discrimination Index: 25
Correct Answer: B

5.5D   Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 4, and his income is 112, how many units of BERRIES will Ambrose choose?

(a) 65

(b) 12

(c) 24

(d) 11

(e) 15

Topic: Choice   Difficulty: 0

% Correct Responses: 76   Discrimination Index: 63

Correct Answer: D

5.6D   In Problem 5.6, Elmer's utility function is $U(x, y) = min\{x, y^2\}$. If the price of x is 25, the price of y is 15, and Elmer chooses to consume 5 units of Y, what must Elmer's income be?

(a) 1,400

(b) 200

(c) 800

(d) 700

(e) There is not enough information to tell.

Topic: Choice   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

5.7A   In Problem 5.7, what bundle would Linus choose if the price of x is 2, the price of y is 4 and his income is 24?

(a) (0, 6)

(b) (12, 0)

(c) (12, 6)

(d) (6, 3)

(e) (6, 6)

Multiple Choice   Choice

5.1E   In Problem 5.1, Charlie has a utility function $U(x_A, x_B) = x_A x_B$, the price of apples is 1 and the price of bananas is 2. If Charlie's income were 160, how many units of bananas would he consume if he chooses the bundle that maximizes his utility subject to his budget constraint?

(a) 40

(b) 20

(c) 80

(d) 8

(e) 120

5.2E   Charlie's utility function is $U(x_A, x_B) = x_A x_B$. If Charlie's income were 40, the price of apples were 5 and the price of bananas were 2, how many apples would there be in the best bundle that Charlie could afford?

(a) 8

(b) 15

(c) 10

(d) 11

(e) 4

Topic: Choice

Difficulty: 0

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: D

5.3E In Problem 5.2, Clara's utility function is $U(X, Y) = (X + 2)(Y + 1)$. If Clara's marginal rate of substitution is -2 and she is consuming 10 units of Good X, how many units of good Y is she consuming?

(a) 2

(b) 24

(c) 12

(d) 23

(e) 5

Topic: Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

5.4E In Problem 5.3, Ambrose's utility is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 3, and his income is 81, how many units of NUTS will Ambrose choose.

(a) 15

(b) 36

(c) 72

(d) 39

(e) 18

Topic: Choice

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 25

Correct Answer: B

5.5E Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts (good 1) is 1, the price of berries (good 2) is 9, and his income is 423, how many units of BERRIES will Ambrose choose?

(a) 325

(b) 11

(c) 22

(d) 10

(e) 14

Topic: Choice   Difficulty: 0
% Correct Responses: 76   Discrimination Index: 63
Correct Answer: D

5.6E   In Problem 5.6, Elmer's utility function is $U(x, y) = min\{x, y^2\}$. If the price of x is 15, the price of y is 10, and Elmer chooses to consume 4 units of Y, what must Elmer's income be?

(a) 560

(b) 100

(c) 380

(d) 280

(e) There is not enough information to tell.

Topic: Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

5.7A   In Problem 5.7, what bundle would Linus choose if the price of x is 2, the price of y is 4 and his income is 24?

(a) $(0, 6)$

(b) $(12, 0)$

(c) $(12, 6)$

(d) $(6, 3)$

(e) $(6, 6)$

Chapter 6

Multiple Choice   Demand

6.1A   In Problem 6.1, if Charlie's utility function were $X_A^6 X_B$, if apples cost 40 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $6X_B = 4X_A$

(b) $X_B = X_A$

(c) $X_A = 6X_B$

(d) $X_B = 6X_A$

(e) $40X_A + 10X_B = M$

6.2A   In Problem 6.1, if Charlie's utility function were $X_A^2 X_B$, if the price of apples were p_A, the price of bananas were p_B, and his income were m, then Charlie's demand for apples would be

(a) $m/(2p_A)$.

(b) $0.50p_A m$.

(c) $m/(p_A + p_B)$.

(d) $0.67m/p_A$.

(e) $1.50p_B m/p_A$.

Topic: Demand   Difficulty: 0
% Correct Responses: 92   Discrimination Index: 25
Correct Answer: D

6.3A   Ambrose's brother Anselm has income 265 and a utility function $U(x_1, x_2) = 70x_1^{1/2} + x_2$. The price of good 1 (nuts) is 5 and the price of good 2 (berries) is 1. How many units of nuts will Anselm demand?

(a) 59

(b) 45

(c) 47

(d) 49

(e) 96

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.4A   Ambrose's brother Augustine has income 128 and a utility function $U(x_1, x_2) = 36x_1^{1/2} + x_2$. The price of nuts is 3 and the price of berries is 1. How many units of berries will Augustine demand?

(a) 20

(b) 36

(c) 40

(d) 42

(e) There is not enough information to determine the answer.

Topic: Demand   Difficulty: 0
% Correct Responses: 80   Discrimination Index: 50
Correct Answer: E

6.5A   In Problem 6.6, recall that Miss Muffett insists on consuming 2 units of whey per unit of curds. If the price of curds is 5 and the price of whey is 5, then if Miss Muffett's income is m, her demand for curds will be

(a) $m/5$.

(b) $5m/5$.

(c) $5C + 5W = m$.

(d) $5m$.

(e) $m/15$.

Topic: Demand   Difficulty: 0

% Correct Responses: 68   Discrimination Index: 63

Correct Answer: B

6.6A In Problem 6.8, recall that Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 8, and $Casper's$ income is \$159, how many units of cocoa will he consume?

(a) 9

(b) 12

(c) 23

(d) 11

(e) 24

Topic: Demand   Difficulty: 3

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

6.7A In Problem 6.13, where x is whips and y is leather jackets, if Kinko's utility function were $U(x, y) = Min\{5x, 3x + 6y\}$, then if the price of whips were \$20 and the price of leather jackets were \$ 20, Kinko would demand

(a) 5 times as many whips as leather jackets.

(b) 4 times as many leather jackets as whips.

(c) 2 times as many leather jackets as whips.

(d) 3 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

6.8A In Problem 6.7, suppose that it takes 2 square feet to grow a cockle shell and 5 square feet to grow a silver bell in Mary's garden. If her space had initially been 90 square feet and increased to 120 square feet:

(a) she would only increase her planting of silver bells

(b) she would plant more silver bells and more cockle shells

(c) she would only increase her planting of cockle shells

(d) cockle shells would be an inferior good

(e) she would increase her planting of cockle shells and decrease her planting of silver bells

Topic: Demand   Difficulty: 0

% Correct Responses: 88   Discrimination Index: 38

Correct Answer: A

6.1B In Problem 6.1, if Charlie's utility function were $X_A^3 X_B$, if apples cost 60 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $3X_B = 6X_A$

(b) $X_B = X_A$

(c) $X_A = 3X_B$

(d) $X_B = 3X_A$

(e) $60X_A + 10X_B = M$

Topic: Demand   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

6.2B In Problem 6.1, if Charlie's utility function were $X_A^5 X_B$, if the price of apples were p_A, the price of bananas were p_B, and his income were m, then Charlie's demand for apples would be

(a) $m/(2p_A)$.

(b) $0.20p_A m$.

(c) $m/(p_A + p_B)$.

(d) $0.83m/p_A$.

(e) $1.20p_B m/p_A$.

Topic: Demand   Difficulty: 0

% Correct Responses: 92   Discrimination Index: 25

Correct Answer: D

6.3B Ambrose's brother Thomas has income 90 and a utility function $U(x_1, x_2) = 20x_1^{1/2} + x_2$. The price of good 1 (nuts) is 2 and the price of good 2 (berries) is 1. How many units of nuts will Thomas demand?

(a) 35

(b) 21

(c) 23

(d) 25

(e) 48

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

6.4B Ambrose's brother Anselm has income 51 and a utility function $U(x_1, x_2) = 16x_1^{1/2} + x_2$. The price of nuts is 4 and the price of berries is 1. How many units of berries will Anselm demand?

(a) 35

(b) 4

(c) 70

(d) 10

(e) There is not enough information to determine the answer.

Topic: Demand

Difficulty: 0

% Correct Responses: 80

Discrimination Index: 50

Correct Answer: E

6.5B In Problem 6.6, recall that Miss Muffett insists on consuming 2 units of whey per unit of curds. If the price of curds is 1 and the price of whey is 6, then if Miss Muffett's income is m, her demand for curds will be

(a) $m/1$.

(b) $6m/1$.

(c) $1C + 6W = m$.

(d) $1m$.

(e) $m/13$.

Topic: Demand

Difficulty: 0

% Correct Responses: 68

Discrimination Index: 63

Correct Answer: B

6.6B In Problem 6.8, recall that Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 10, and Casper's income is \$240, how many units of cocoa will he consume?

(a) 12

(b) 15

(c) 29

(d) 14

(e) 30

Topic: Demand   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

6.7B   In Problem 6.13, where x is whips and y is leather jackets, if Kinko's utility function were $U(x, y) = Min\{9x, 4x + 20y\}$, then if the price of whips were \$20 and the price of leather jackets were \$ 80, Kinko would demand

(a) 6 times as many whips as leather jackets.

(b) 5 times as many leather jackets as whips.

(c) 3 times as many leather jackets as whips.

(d) 4 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

6.8A   In Problem 6.7, suppose that it takes 2 square feet to grow a cockle shell and 5 square feet to grow a silver bell in Mary's garden. If her space had initially been 90 square feet and increased to 120 square feet:

(a) she would only increase her planting of silver bells

(b) she would plant more silver bells and more cockle shells

(c) she would only increase her planting of cockle shells

(d) cockle shells would be an inferior good

(e) she would increase her planting of cockle shells and decrease her planting of silver bells

Topic: Demand

Difficulty: 0

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: A

6.1C   In Problem 6.1, if Charlie's utility function were $X_A^3 X_B$, if apples cost 80 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $3X_B = 8X_A$

(b) $X_B = X_A$

(c) $X_A = 3X_B$

(d) $X_B = 3X_A$

(e) $80X_A + 10X_B = M$

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

6.2C   In Problem 6.1, if Charlie's utility function were $X_A^2 X_B$, if the price of apples were p_A, the price of bananas were p_B, and his income were m, then Charlie's demand for apples would be

(a) $m/(2p_A)$.

(b) $0.50p_A m$.

(c) $m/(p_A + p_B)$.

(d) $0.67m/p_A$.

(e) $1.50p_B m/p_A$.

Topic: Demand

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 25

Correct Answer: D

6.3C   Ambrose's brother Bartholomew has income 109 and a utility function $U(x_1, x_2) = 32x_1^{1/2} + x_2$. The price of good 1 (nuts) is 4 and the price of good 2 (berries) is 1. How many units of nuts will Bartholomew demand?

(a) 26

(b) 12

(c) 14

(d) 16

(e) 30

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.4C   Ambrose's brother Sebastian has income 60 and a utility function $U(x_1, x_2) = 20x_1^{1/2} + x_2$.
The price of nuts is 2 and the price of berries is 1. How many units of berries will Sebastian demand?

(a) 10

(b) 25

(c) 20

(d) 31

(e) There is not enough information to determine the answer.

Topic: Demand   Difficulty: 0
% Correct Responses: 80   Discrimination Index: 50
Correct Answer: E

6.5C   In Problem 6.6, recall that Miss Muffett insists on consuming 2 units of whey per unit of
curds. If the price of curds is 2 and the price of whey is 2, then if Miss Muffett's income is m, her
demand for curds will be

(a) $m/2$.

(b) $2m/2$.

(c) $2C + 2W = m$.

(d) $2m$.

(e) $m/6$.

Topic: Demand   Difficulty: 0
% Correct Responses: 68   Discrimination Index: 63
Correct Answer: B

6.6C   In Problem 6.8, recall that Casper's utility function is $3x + y$, where x is his consumption
of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price
of cheese is 2, and $Casper's$ income is \$34, how many units of cocoa will he consume?

(a) 0

(b) 3

(c) 5

(d) 2

(e) 6

Topic: Demand

% Correct Responses: 0

Correct Answer: D

Difficulty: 3

Discrimination Index: 0

6.7C In Problem 6.13, where x is whips and y is leather jackets, if Kinko's utility function were $U(x,y) = Min\{6x, 4x + 8y\}$, then if the price of whips were \$20 and the price of leather jackets were \$ 20, Kinko would demand

(a) 6 times as many whips as leather jackets.

(b) 5 times as many leather jackets as whips.

(c) 3 times as many leather jackets as whips.

(d) 4 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

6.8A In Problem 6.7, suppose that it takes 2 square feet to grow a cockle shell and 5 square feet to grow a silver bell in Mary's garden. If her space had initially been 90 square feet and increased to 120 square feet:

(a) she would only increase her planting of silver bells

(b) she would plant more silver bells and more cockle shells

(c) she would only increase her planting of cockle shells

(d) cockle shells would be an inferior good

(e) she would increase her planting of cockle shells and decrease her planting of silver bells

Topic: Demand
% Correct Responses: 88
Correct Answer: A

Difficulty: 0
Discrimination Index: 38

6.1D   In Problem 6.1, if Charlie's utility function were $X_A^5 X_B$, if apples cost 20 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $5X_B = 2X_A$

(b) $X_B = X_A$

(c) $X_A = 5X_B$

(d) $X_B = 5X_A$

(e) $20X_A + 10X_B = M$

Topic: Demand
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

6.2D   In Problem 6.1, if Charlie's utility function were $X_A^2 X_B$, if the price of apples were p_A, the price of bananas were p_B, and his income were m, then Charlie's demand for apples would be

(a) $m/(2p_A)$.

(b) $0.50p_Am$.

(c) $m/(p_A + p_B)$.

(d) $0.67m/p_A$.

(e) $1.50p_Bm/p_A$.

Topic: Demand
% Correct Responses: 92
Correct Answer: D

Difficulty: 0
Discrimination Index: 25

6.3D   Ambrose's brother Anthony has income 114 and a utility function $U(x_1, x_2) = 32x_1^{1/2} + x_2$. The price of good 1 (*nuts*) is 4 and the price of good 2 (berries) is 1. How many units of nuts will Anthony demand?

(a) 26

(b) 12

(c) 14

(d) 16

(e) 30

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

6.4D Ambrose's brother Bartholomew has income 281 and a utility function $U(x_1, x_2) = 64x_1^{1/2} + x_2$. The price of nuts is 4 and the price of berries is 1. How many units of berries will Bartholomew demand?

(a) 25

(b) 64

(c) 50

(d) 70

(e) There is not enough information to determine the answer.

Topic: Demand

Difficulty: 0

% Correct Responses: 80

Discrimination Index: 50

Correct Answer: E

6.5D In Problem 6.6, recall that Miss Muffett insists on consuming 2 units of whey per unit of curds. If the price of curds is 5 and the price of whey is 2, then if Miss Muffett's income is m, her demand for curds will be

(a) $m/5$.

(b) $2m/5$.

(c) $5C + 2W = m$.

(d) $5m$.

(e) $m/9$.

Topic: Demand

Difficulty: 0

% Correct Responses: 68

Discrimination Index: 63

Correct Answer: B

6.6D In Problem 6.8, recall that Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 2, and $Casper's$ income is \$49, how many units of cocoa will he consume?

(a) 0

(b) 3

(c) 5

(d) 2

(e) 6

Topic: Demand

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

6.7D   In Problem 6.13, where x is whips and y is leather jackets, if Kinko's utility function were $U(x, y) = Min\{7x, 5x + 10y\}$, then if the price of whips were \$20 and the price of leather jackets were \$ 20, Kinko would demand

(a) 7 times as many whips as leather jackets.

(b) 6 times as many leather jackets as whips.

(c) 4 times as many leather jackets as whips.

(d) 5 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

6.8A   In Problem 6.7, suppose that it takes 2 square feet to grow a cockle shell and 5 square feet to grow a silver bell in Mary's garden. If her space had initially been 90 square feet and increased to 120 square feet:

(a) she would only increase her planting of silver bells

(b) she would plant more silver bells and more cockle shells

(c) she would only increase her planting of cockle shells

(d) cockle shells would be an inferior good

(e) she would increase her planting of cockle shells and decrease her planting of silver bells

Topic: Demand

Difficulty: 0

% Correct Responses: 88

Discrimination Index: 38

Correct Answer: A

6.1E   In Problem 6.1, if Charlie's utility function were $X_A^3 X_B$, if apples cost 60 cents each and bananas cost 10 cents each, Charlie's budget line would be tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $3X_B = 6X_A$

(b) $X_B = X_A$

(c) $X_A = 3X_B$

(d) $X_B = 3X_A$

(e) $60X_A + 10X_B = M$

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

6.2E   In Problem 6.1, if Charlie's utility function were $X_A^3 X_B$, if the price of apples were p_A, the price of bananas were p_B, and his income were m, then Charlie's demand for apples would be

(a) $m/(2p_A)$.

(b) $0.33p_A m$.

(c) $m/(p_A + p_B)$.

(d) $0.75m/p_A$.

(e) $1.33p_B m/p_A$.

Topic: Demand

Difficulty: 0

% Correct Responses: 92

Discrimination Index: 25

Correct Answer: D

6.3E   Ambrose's brother Augustine has income 115 and a utility function $U(x_1, x_2) = 40x_1^{1/2} + x_2$. The price of good 1 (nuts) is 5 and the price of good 2 (berries) is 1. How many units of nuts will Augustine demand?

(a) 26

(b) 12

(c) 14

(d) 16

(e) 30

Topic: Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

6.4E   Ambrose's brother Anthony has income 33 and a utility function $U(x_1, x_2) = 12x_1^{1/2} + x_2$. The price of nuts is 2 and the price of berries is 1. How many units of berries will Anthony demand?

(a) 15

(b) 9

(c) 30

(d) 15

(e) There is not enough information to determine the answer.

Topic: Demand   Difficulty: 0
% Correct Responses: 80   Discrimination Index: 50
Correct Answer: E

6.5E   In Problem 6.6, recall that Miss Muffett insists on consuming 2 units of whey per unit of curds. If the price of curds is 1 and the price of whey is 4, then if Miss Muffett's income is m, her demand for curds will be

(a) $m/1$.

(b) $4m/1$.

(c) $1C + 4W = m$.

(d) $1m$.

(e) $m/9$.

Topic: Demand   Difficulty: 0
% Correct Responses: 68   Discrimination Index: 63
Correct Answer: B

6.6E   In Problem 6.8, recall that Casper's utility function is $3x + y$, where x is his consumption of cocoa and y is his consumption of cheese. If the total cost of x units of cocoa is x^2, if the price of cheese is 6, and $Casper's$ income is \$101, how many units of cocoa will he consume?

(a) 6

(b) 9

(c) 17

(d) 8

(e) 18

Topic: Demand

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

6.7E   In Problem 6.13, where x is whips and y is leather jackets, if Kinko's utility function were $U(x, y) = Min\{6x, 3x + 9y\}$, then if the price of whips were \$20 and the price of leather jackets were \$ 40, Kinko would demand

(a) 5 times as many whips as leather jackets.

(b) 4 times as many leather jackets as whips.

(c) 2 times as many leather jackets as whips.

(d) 3 times as many whips as leather jackets.

(e) only leather jackets.

Topic: Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

6.8A   In Problem 6.7, suppose that it takes 2 square feet to grow a cockle shell and 5 square feet to grow a silver bell in Mary's garden. If her space had initially been 90 square feet and increased to 120 square feet:

(a) she would only increase her planting of silver bells

(b) she would plant more silver bells and more cockle shells

(c) she would only increase her planting of cockle shells

(d) cockle shells would be an inferior good

(e) she would increase her planting of cockle shells and decrease her planting of silver bells

Chapter 7

Multiple Choice   Revealed Preference

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.1A   In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle $(6,6)$ when prices are $(6,6)$ and she chooses the bundle $(10,0)$ when prices are $(3,5)$, then we could conclude that

(a) The bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) Neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is noevidence that she violates WARP.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 12   Discrimination Index: 0
Correct Answer: C

7.2A   In Problem 7.3, Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 3 francs per loaf of bread. Henri consumes 5 glasses of wine and 4 loaves of bread per day. Recall that Bob has an income of $15 per day, and pays $.50 per loaf of bread and $2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce

(a) nothing about whether one is better than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.3A   Let us reconsider the case of Ronald in Problem 7.4. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 is 1 and the price of good 2 is 1, and his current consumptions of good 1 and good 2 are 25 and 20 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 0.67

(b) 1.50

(c) 0.50

(d) 0.25

(e) 1

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 56   Discrimination Index: 75
Correct Answer: A

7.4A   On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 60 fragels. In 1990, the price of good 1 was 3 fragels and the price of good 2 was 5 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is

(a) 2.75

(b) 4

(c) 2.67

(d) 4.25

(e) not possible to determine from this information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.5A   On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x, y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 10 doggerels per unit and the price of y was 4 doggerels per unit. Paasche price index of prices in 1990 relative to prices in 1850 is

(a) 6

(b) 4.67

(c) 2.50

(d) 3.50

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.6A   In Problem 7.4, if Situation D is $p = (3, 1)$ and $x = (5, 10)$:

(a) Ronald's behavior is consistent with both the Weak and the Strong Axiom of Revealed Preference

(b) Ronald's behavior is consistent with the Weak, but not the Strong Axiom of Revealed Preference

(c) Ronald's behavior violates both the Weak and the Strong Axiom of Revealed Preference

(d) Ronald prefers Situation A to all others

(e) more than one of the above is true

Multiple Choice   Revealed Preference

7.1B   In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle $(6,6)$ when prices are $(6,7)$ and she chooses the bundle $(10,0)$ when prices are $(4,5)$, then we could conclude that

(a) The bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) Neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is noevidence that she violates WARP.

7.2B   In Problem 7.3, Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 7 francs per loaf of bread. Henri consumes 4 glasses of wine and 4 loaves of bread per day. Recall that Bob has an income of \$15 per day, and pays \$.50 per loaf of bread and \$2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce

(a) nothing about whether one is better than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.3B   Let us reconsider the case of Ronald in Problem 7.4. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 is 1 and the price of good 2 is 3, and his current consumptions of good 1 and good 2 are 25 and 25 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 1.67

(b) 3.33

(c) 1

(d) 0.75

(e) 2.50

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 56   Discrimination Index: 75
Correct Answer: A

7.4B   On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 72 fragels. In 1990, the price of good 1 was 4 fragels and the price of good 2 was 3 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is

(a) 2.75

(b) 3.50

(c) 2.33

(d) 4.75

(e) not possible to determine from this information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.5B   On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x,y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 9 doggerels per unit and the price of y was 4 doggerels per unit. Paasche price index of prices in 1990 relative to prices in 1850 is

(a) 5.50

(b) 4.33

(c) 2.25

(d) 3.25

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.6A   In Problem 7.4, if Situation D is $p = (3, 1)$ and $x = (5, 10)$:

(a) Ronald's behavior is consistent with both the Weak and the Strong Axiom of Revealed Preference

(b) Ronald's behavior is consistent with the Weak, but not the Strong Axiom of Revealed Preference

(c) Ronald's behavior violates both the Weak and the Strong Axiom of Revealed Preference

(d) Ronald prefers Situation A to all others

(e) more than one of the above is true

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.1C   In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle $(6, 6)$ when prices are $(6, 6)$ and she chooses the bundle $(10, 0)$ when prices are $(1, 5)$, then we could conclude that

(a) The bundle $(6, 6)$ is revealed preferred to $(10, 0)$ but there is no evidence that she violates WARP.

(b) Neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) The bundle $(10, 0)$ is revealed preferred to $(6, 6)$ and she violates WARP.

(e) The bundle $(10, 0)$ is revealed preferred to $(6, 6)$ and there is noevidence that she violates WARP.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 12   Discrimination Index: 0
Correct Answer: C

7.2C   In Problem 7.3, Pierre's friend Jacques lives in a town where he has to pay 3 francs per glass of wine and 3 francs per loaf of bread. Jacques consumes 9 glasses of wine and 4 loaves of bread per day. Recall that Bob has an income of \$15 per day, and pays \$.50 per loaf of bread and \$2 per glass of wine. If Bob has the same tastes as Jacques, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce

(a) nothing about whether one is better than the other.

(b) that Jacques is better off than Bob.

(c) that Bob is better off than Jacques.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Jacques are equally well off.

Topic: Revealed Preference Difficulty: 2
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: A

7.3C   Let us reconsider the case of Ronald in Problem 7.4. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 is 1 and the price of good 2 is 3, and his current consumptions of good 1 and good 2 are 25 and 20 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 1.67

(b) 2.83

(c) 1

(d) 0.75

(e) 2.50

Topic: Revealed Preference Difficulty: 2
% Correct Responses: 56 Discrimination Index: 75
Correct Answer: A

7.4C   On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 84 fragels. In 1990, the price of good 1 was 5 fragels and the price of good 2 was 2 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is

(a) 3

(b) 3.50

(c) 2.33

(d) 5.50

(e) not possible to determine from this information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.5C   On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x, y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 11 doggerels per unit and the price of y was 4 doggerels per unit. Paasche price index of prices in 1990 relative to prices in 1850 is

(a) 6.50

(b) 5

(c) 2.75

(d) 3.75

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.6A   In Problem 7.4, if Situation D is $p = (3, 1)$ and $x = (5, 10)$:

(a) Ronald's behavior is consistent with both the Weak and the Strong Axiom of Revealed Preference

(b) Ronald's behavior is consistent with the Weak, but not the Strong Axiom of Revealed Preference

(c) Ronald's behavior violates both the Weak and the Strong Axiom of Revealed Preference

(d) Ronald prefers Situation A to all others

(e) more than one of the above is true

Multiple Choice   Revealed Preference

7.1D   In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle $(6,6)$ when prices are $(6,7)$ and she chooses the bundle $(10,0)$ when prices are $(3,5)$, then we could conclude that

(a) The bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) Neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is noevidence that she violates WARP.

7.2D   In Problem 7.3, Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 6 francs per loaf of bread. Henri consumes 7 glasses of wine and 4 loaves of bread per day. Recall that Bob has an income of $15 per day, and pays $.50 per loaf of bread and $2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce

(a) nothing about whether one is better than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

7.3D   Let us reconsider the case of Ronald in Problem 7.4. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 is 1 and the price of good 2 is 1, and his current consumptions of good 1 and good 2 are 25 and 15 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 0.67

(b) 1.33

(c) 0.50

(d) 0.25

(e) 1

7.4D   On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 120 fragels. In 1990, the price of good 1 was 3 fragels and the price of good 2 was 3 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is

(a) 2.25

(b) 3

(c) 2

(d) 3.75

(e) not possible to determine from this information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.5D   On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x, y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 9 doggerels per unit and the price of y was 4 doggerels per unit. Paasche price index of prices in 1990 relative to prices in 1850 is

(a) 5.50

(b) 4.33

(c) 2.25

(d) 3.25

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.6A   In Problem 7.4, if Situation D is $p = (3, 1)$ and $x = (5, 10)$:

(a) Ronald's behavior is consistent with both the Weak and the Strong Axiom of Revealed Preference

(b) Ronald's behavior is consistent with the Weak, but not the Strong Axiom of Revealed Preference

(c) Ronald's behavior violates both the Weak and the Strong Axiom of Revealed Preference

(d) Ronald prefers Situation A to all others

(e) more than one of the above is true

Topic: Revealed Preference   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.1E   In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle $(6,6)$ when prices are $(6,6)$ and she chooses the bundle $(10,0)$ when prices are $(5,5)$, then we could conclude that

(a) The bundle $(6,6)$ is revealed preferred to $(10,0)$ but there is no evidence that she violates WARP.

(b) Neither bundle is revealed preferred to the other.

(c) Goldie violates WARP.

(d) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and she violates WARP.

(e) The bundle $(10,0)$ is revealed preferred to $(6,6)$ and there is noevidence that she violates WARP.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 12   Discrimination Index: 0
Correct Answer: C

7.2E   In Problem 7.3, Pierre's friend Henri lives in a town where he has to pay 3 francs per glass of wine and 7 francs per loaf of bread. Henri consumes 4 glasses of wine and 4 loaves of bread per day. Recall that Bob has an income of $15 per day, and pays $.50 per loaf of bread and $2 per glass of wine. If Bob has the same tastes as Henri, and if the only thing that either of them cares about is consumption of bread and wine, we can deduce

(a) nothing about whether one is better than the other.

(b) that Henri is better off than Bob.

(c) that Bob is better off than Henri.

(d) that both of them violate the weak axiom of revealed preferences.

(e) that Bob and Henri are equally well off.

Topic: Revealed Preference
Difficulty: 2
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: A

7.3E Let us reconsider the case of Ronald in Problem 7.4. Let the prices and consumptions in the base year be as in Situation D, where $p_1 = 3$, $p_2 = 1$, $x_1 = 5$, and $x_2 = 15$. If in the current year, the price of good 1 is 1 and the price of good 2 is 1, and his current consumptions of good 1 and good 2 are 25 and 10 respectively, what is the Laspeyres price index of current prices relative to base year prices? (Pick the most nearly correct answer.)

(a) 0.67

(b) 1.17

(c) 0.50

(d) 0.25

(e) 1

Topic: Revealed Preference
Difficulty: 2
% Correct Responses: 56
Discrimination Index: 75
Correct Answer: A

7.4E On the planet, Homogenia, every consumer who has ever lived consumes only two goods x and y and has the utility function $U(x, y) = xy$. The currency in Homogenia is the fragel. In this country in 1900, the price of good 1 was 1 fragel and the price of good 2 was 2 fragels. Per capita income was 84 fragels. In 1990, the price of good 1 was 2 fragels and the price of good 2 was 2 fragels. The Laspeyres price index for the price level in 1990 relative to the price level in 1900 is

(a) 1.50

(b) 2

(c) 1.33

(d) 2.50

(e) not possible to determine from this information.

Topic: Revealed Preference   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.5E   On the planet, Hyperion, every consumer who has ever lived has a utility function $U(x, y) = min\{x, 2y\}$. The currency of Hyperion is the doggerel. In 1850 the price of x was 1 doggerel per unit and the price of y was 2 doggerels per unit. In 1990, the price of x was 12 doggerels per unit and the price of y was 4 doggerels per unit. Paasche price index of prices in 1990 relative to prices in 1850 is

(a) 7

(b) 5.33

(c) 3

(d) 4

(e) not possible to determine without further information.

Topic: Revealed Preference   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

7.6A   In Problem 7.4, if Situation D is $p = (3, 1)$ and $x = (5, 10)$:

(a) Ronald's behavior is consistent with both the Weak and the Strong Axiom of Revealed Preference

(b) Ronald's behavior is consistent with the Weak, but not the Strong Axiom of Revealed Preference

(c) Ronald's behavior violates both the Weak and the Strong Axiom of Revealed Preference

(d) Ronald prefers Situation A to all others

(e) more than one of the above is true

Chapter 8

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Multiple Choice   **Slutsky Equation**

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Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.1A In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$1.75 and the price of bananas fell to \$0.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of

(a) 37.50

(b) 76

(c) 18.75

(d) 56.25

(e) 150

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 64   Discrimination Index: 60
Correct Answer: C

8.2A In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 and the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 6 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 16.67 apples.

(b) 5 apples.

(c) 8.33 apples.

(d) 13.33 apples.

(e) None of the other options are correct.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: C

Difficulty: 2
Discrimination Index: 0

8.3A   Neville, in Problem 8.2, has a friend named Marmaduke. Marmaduke has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Marmaduke's income is 4,000 and he initially had to pay a price of 30 per bottle of claret. The price of claret rose to 60. The substitution effect of the price change

(a) reduced his demand by 60.

(b) increased his demand by 60.

(c) reduced his demand by 48.

(d) reduced his demand by 72.

(e) reduced his demand by 58.

Topic: Slutsky Equation
% Correct Responses: 79
Correct Answer: C

Difficulty: 1
Discrimination Index: 47

8.4A   Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 720 and if the price of good 2 changes from 8 to 9, while the price of good 1 stays at 1, then the income effect of the price change

(a) is 9 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 8 times as strong as the substitution effect.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

8.5A   Suppose that Agatha in Problem 8.10 had $330 to spend on tickets for her trip. She needs to travel a total of 1500 miles. Suppose that the price of first-class tickets is $0.40 per mile and the price of second-class tickets is $0.10 per mile. How many miles will she travel by second class?

(a) 900

(b) 1,050

(c) 450

(d) 1,000

(e) 300

Topic: Slutsky Equation

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

8.6A In Problem 8.4, Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $3 per unit and hollyhocks cost $4 per unit, and if the price of delphiniums rises to $7 per unit,

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) the fraction 1/4 of the change will be due to the income effect.

(e) the fraction 3/4 of the change will be due to the income effect.

Multiple Choice   Slutsky Equation

8.1B   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2 and the price of bananas fell to \$0.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of

(a) 42.50

(b) 86

(c) 21.25

(d) 63.75

(e) 170

8.2B   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 and the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 3 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 13.33 apples.

(b) 2 apples.

(c) 6.67 apples.

(d) 11.67 apples.

(e) None of the other options are correct.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

8.3B   Neville, in Problem 8.2, has a friend named Marmaduke. Marmaduke has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Marmaduke's income is 5,500 and he initially had to pay a price of 30 per bottle of claret. The price of claret rose to 60. The substitution effect of the price change

(a) reduced his demand by 60.

(b) increased his demand by 60.

(c) reduced his demand by 30.

(d) reduced his demand by 90.

(e) reduced his demand by 40.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 47
Correct Answer: C

8.4B   Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 420 and if the price of good 2 changes from 6 to 7, while the price of good 1 stays at 1, then the income effect of the price change

(a) is 7 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 6 times as strong as the substitution effect.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.5B   Suppose that Agatha in Problem 8.10 had $615 to spend on tickets for her trip. She needs to travel a total of 1500 miles. Suppose that the price of first-class tickets is $0.50 per mile and the price of second-class tickets is $0.20 per mile. How many miles will she travel by second class?

(a) 450

(b) 600

(c) 225

(d) 550

(e) 150

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

8.6B   In Problem 8.4, Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $4 per unit and hollyhocks cost $5 per unit, and if the price of delphiniums rises to $8 per unit,

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) the fraction 1/4 of the change will be due to the income effect.

(e) the fraction 3/4 of the change will be due to the income effect.

Multiple Choice   # Slutsky Equation

8.1C   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2.25 and the price of bananas fell to \$0.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of

(a) 47.50

(b) 96

(c) 23.75

(d) 71.25

(e) 190

8.2C   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 and the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 4 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 15 apples.

(b) 3 apples.

(c) 7.50 apples.

(d) 12.50 apples.

(e) None of the other options are correct.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: C

Difficulty: 2
Discrimination Index: 0

8.3C   Neville, in Problem 8.2, has a friend named Nigel. Nigel has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Nigel's income is 5,000 and he initially had to pay a price of 40 per bottle of claret. The price of claret rose to 80. The substitution effect of the price change

(a) reduced his demand by 80.

(b) increased his demand by 80.

(c) reduced his demand by 64.

(d) reduced his demand by 96.

(e) reduced his demand by 74.

Topic: Slutsky Equation
% Correct Responses: 79
Correct Answer: C

Difficulty: 1
Discrimination Index: 47

8.4C   Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 120 and if the price of good 2 changes from 3 to 4, while the price of good 1 stays at 1, then the income effect of the price change

(a) is 4 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 3 times as strong as the substitution effect.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

8.5C   Suppose that Agatha in Problem 8.10 had $630 to spend on tickets for her trip. She needs to travel a total of 1500 miles. Suppose that the price of first-class tickets is $0.60 per mile and the price of second-class tickets is $0.30 per mile. How many miles will she travel by second class?

(a) 900

(b) 1,050

(c) 450

(d) 1,000

(e) 300

MULTIPLE CHOICE

Topic: Slutsky Equation

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

8.6C   In Problem 8.4, Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $4 per unit and hollyhocks cost $5 per unit, and if the price of delphiniums rises to $9 per unit,

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) the fraction 1/5 of the change will be due to the income effect.

(e) the fraction 4/5 of the change will be due to the income effect.

Multiple Choice   # Slutsky Equation

8.1D In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2.50 and the price of bananas fell to \$1.25, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of

(a) 62.50

(b) 126

(c) 31.25

(d) 93.75

(e) 250

8.2D In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 and the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 9 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 17.78 apples.

(b) 8 apples.

(c) 8.89 apples.

(d) 13.89 apples.

(e) None of the other options are correct.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: C

Difficulty: 2
Discrimination Index: 0

8.3D Neville, in Problem 8.2, has a friend named Marmaduke. Marmaduke has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Marmaduke's income is 8,500 and he initially had to pay a price of 50 per bottle of claret. The price of claret rose to 80. The substitution effect of the price change

(a) reduced his demand by 60.

(b) increased his demand by 60.

(c) reduced his demand by 18.

(d) reduced his demand by 102.

(e) reduced his demand by 28.

Topic: Slutsky Equation
% Correct Responses: 79
Correct Answer: C

Difficulty: 1
Discrimination Index: 47

8.4D Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 720 and if the price of good 2 changes from 8 to 9, while the price of good 1 stays at 1, then the income effect of the price change

(a) is 9 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 8 times as strong as the substitution effect.

Topic: Slutsky Equation
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

8.5D Suppose that Agatha in Problem 8.10 had $660 to spend on tickets for her trip. She needs to travel a total of 1500 miles. Suppose that the price of first-class tickets is $0.50 per mile and the price of second-class tickets is $0.20 per mile. How many miles will she travel by second class?

(a) 300

(b) 450

(c) 150

(d) 400

(e) 100

Topic: Slutsky Equation

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

8.6D   In Problem 8.4, Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $2 per unit and hollyhocks cost $3 per unit, and if the price of delphiniums rises to $5 per unit,

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) the fraction 1/3 of the change will be due to the income effect.

(e) the fraction 2/3 of the change will be due to the income effect.

Multiple Choice   # Slutsky Equation

8.1E   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$2 and the price of bananas fell to \$1.50, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of

(a) 55

(b) 111

(c) 27.50

(d) 82.50

(e) 220

8.2E   In Problem 8.1, Charlie's utility function is $x_A x_B$. The price of apples used to be \$1 and the price of bananas used to be \$2, and his income used to be \$40. If the price of apples increased to 9 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 17.78 apples.

(b) 8 apples.

(c) 8.89 apples.

(d) 13.89 apples.

(e) None of the other options are correct.

Topic: Slutsky Equation   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

8.3E Neville, in Problem 8.2, has a friend named Colin. Colin has the same demand function for claret as Neville, namely $q = .02m - 2p$ where m is income and p is price. Colin's income is 4,500 and he initially had to pay a price of 30 per bottle of claret. The price of claret rose to 70. The substitution effect of the price change

(a) reduced his demand by 80.

(b) increased his demand by 80.

(c) reduced his demand by 56.

(d) reduced his demand by 104.

(e) reduced his demand by 66.

Topic: Slutsky Equation   Difficulty: 1
% Correct Responses: 79   Discrimination Index: 47
Correct Answer: C

8.4E Goods 1 and 2 are perfect complements and a consumer always consumes them in the ratio of 2 units of Good 2 per unit of Good 1. If a consumer has income 120 and if the price of good 2 changes from 3 to 4, while the price of good 1 stays at 1, then the income effect of the price change

(a) is 4 times as strong as the substitution effect.

(b) does not change demand for good 1.

(c) accounts for the entire change in demand.

(d) is exactly twice as strong as the substitution effect.

(e) is 3 times as strong as the substitution effect.

Topic: Slutsky Equation   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

8.5E Suppose that Agatha in Problem 8.10 had $300 to spend on tickets for her trip. She needs to travel a total of 1500 miles. Suppose that the price of first-class tickets is $0.30 per mile and the price of second-class tickets is $0.10 per mile. How many miles will she travel by second class?

(a) 750

(b) 900

(c) 375

(d) 850

(e) 250

Topic: Slutsky Equation

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

8.6E In Problem 8.4, Maude thinks delphiniums and hollyhocks are perfect substitutes, one-for-one. If Delphiniums currently cost $3 per unit and hollyhocks cost $4 per unit, and if the price of delphiniums rises to $8 per unit,

(a) the income effect of the change in demand for delphiniums will be bigger than the substitution effect.

(b) there will be no change in the demand for hollyhocks.

(c) the entire change in demand for delphiniums will be due to the substitution effect.

(d) the fraction 1/5 of the change will be due to the income effect.

(e) the fraction 4/5 of the change will be due to the income effect.

Chapter 9

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 98   Discrimination Index: 7
Correct Answer: D

9.1A   In Problem 9.1, if Abishag owned 4 quinces and 5 kumquats, and if the price of kumquats is 2 times the price of quinces, how many kumquats could she afford if she spent all of her money on kumquats?

(a) 14

(b) 9

(c) 5

(d) 7

(e) 4

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

9.2A   Suppose that Mario in Problem 9.2 consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $20 per bushel for each vegetable, but the price of eggplant rose to $80 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would

(a) increase his eggplant consumption by 6 bushels.

(b) decrease his eggplant consumption by at least 6 bushels.

(c) increase his consumption of eggplant by 8 bushels.

(d) decrease his consumption of eggplant by 8 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.3A   Dr. *J.* has 80 hours per week to divide between work and leisure. His wage rate if $5 per hour. Dr. *J.* receives a lump sum payment of $150 per week. Suppose that the first $50 per week of his labor income is untaxed, but all labor income above $50 is taxed at a rate of 50 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 80 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 200 and his leisure is 70.

(c) The slope of Dr. $J's$ budget line is everywhere -2.50

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 70   Discrimination Index: 53
Correct Answer: E

9.4A   Dudley, in Problem 9.15, has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $50 per day and is paid a wage of $0 per hour, how many hours of leisure will he choose per day?

(a) 9

(b) 10

(c) 11

(d) 13

(e) 12

Topic: Buying and Selling   Difficulty: 1

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

9.5A   Mr. Cog in Problem 9.7 has 18 hours a day to divide between labor and leisure If he has 10 dollars of nonlabor income per day and gets a wage rate of 9 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as

(a) $9R + C = 10$

(b) $9R + C = 172$

(c) $R + C/9 = 226$

(d) $C = 172 + 9R$

(e) $C = 202 + 9R$

Topic: Buying and Selling   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

9.6A   Mr. Cog in Problem 9.7 has 18 hours per day to divide between labor and leisure. If he has a nonlabor income of 36 dollars per day and a wage rate of 19 dollars per hour, he will choose a combination of labor and leisure that allows him to spend

(a) 378 dollars per day on consumption.

(b) 179 dollars per day on consumption.

(c) 207 dollars per day on consumption.

(d) 189 dollars per day on consumption.

(e) 283.50 dollars per day on consumption.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 98   Discrimination Index: 7
Correct Answer: D

9.1B   In Problem 9.1, if Abishag owned 20 quinces and 5 kumquats, and if the price of kumquats is 4 times the price of quinces, how many kumquats could she afford if she spent all of her money on kumquats?

(a) 20

(b) 25

(c) 5

(d) 10

(e) 7

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

9.2B   Suppose that Mario in Problem 9.2 consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $25 per bushel for each vegetable, but the price of eggplant rose to $50 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would

(a) increase his eggplant consumption by 3.33 bushels.

(b) decrease his eggplant consumption by at least 3.33 bushels.

(c) increase his consumption of eggplant by 5.33 bushels.

(d) decrease his consumption of eggplant by 5.33 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

9.3B   Dr. *J.* has 80 hours per week to divide between work and leisure. His wage rate if \$5 per hour. Dr. *J.* receives a lump sum payment of \$200 per week. Suppose that the first \$50 per week of his labor income is untaxed, but all labor income above \$50 is taxed at a rate of 60 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 80 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 250 and his leisure is 70.

(c) The slope of Dr. $J's$ budget line is everywhere -2

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

9.4B   Dudley, in Problem 9.15, has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of \$15 per day and is paid a wage of \$4 per hour, how many hours of leisure will he choose per day?

(a) 7

(b) 8

(c) 9

(d) 11

(e) 10

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.5B   Mr. Cog in Problem 9.7 has 18 hours a day to divide between labor and leisure If he has 15 dollars of nonlabor income per day and gets a wage rate of 6 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as

(a) $6R + C = 15$

(b) $6R + C = 123$

(c) $R + C/6 = 159$

(d) $C = 123 + 6R$

(e) $C = 168 + 6R$

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

9.6B   Mr. Cog in Problem 9.7 has 18 hours per day to divide between labor and leisure. If he has a nonlabor income of 40 dollars per day and a wage rate of 20 dollars per hour, he will choose a combination of labor and leisure that allows him to spend

(a) 400 dollars per day on consumption.

(b) 190 dollars per day on consumption.

(c) 220 dollars per day on consumption.

(d) 200 dollars per day on consumption.

(e) 300 dollars per day on consumption.

Topic: Buying and Selling   Difficulty: 0

% Correct Responses: 98   Discrimination Index: 7

Correct Answer: D

9.1C   In Problem 9.1, if Abishag owned 12 quinces and 20 kumquats, and if the price of kumquats is 6 times the price of quinces, how many kumquats could she afford if she spent all of her money on kumquats?

(a) 44

(b) 32

(c) 20

(d) 22

(e) 19

Topic: Buying and Selling   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

9.2C   Suppose that Mario in Problem 9.2 consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $15 per bushel for each vegetable, but the price of eggplant rose to $60 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would

(a) increase his eggplant consumption by 6 bushels.

(b) decrease his eggplant consumption by at least 6 bushels.

(c) increase his consumption of eggplant by 8 bushels.

(d) decrease his consumption of eggplant by 8 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.3C   Dr. J. has 80 hours per week to divide between work and leisure. His wage rate if $5 per hour. Dr. J. receives a lump sum payment of $100 per week. Suppose that the first $50 per week of his labor income is untaxed, but all labor income above $50 is taxed at a rate of 60 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 80 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 150 and his leisure is 70.

(c) The slope of Dr. $J's$ budget line is everywhere -2

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 70   Discrimination Index: 53
Correct Answer: E

9.4C   Dudley, in Problem 9.15, has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $30 per day and is paid a wage of $10 per hour, how many hours of leisure will he choose per day?

(a) 4

(b) 5

(c) 6

(d) 8

(e) 7

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.5C   Mr. Cog in Problem 9.7 has 18 hours a day to divide between labor and leisure If he has 14 dollars of nonlabor income per day and gets a wage rate of 14 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as

(a) $14R + C = 14$

(b) $14R + C = 266$

(c) $R + C/14 = 350$

(d) $C = 266 + 14R$

(e) $C = 308 + 14R$

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

9.6C   Mr. Cog in Problem 9.7 has 18 hours per day to divide between labor and leisure. If he has a nonlabor income of 30 dollars per day and a wage rate of 7 dollars per hour, he will choose a combination of labor and leisure that allows him to spend

(a) 156 dollars per day on consumption.

(b) 68 dollars per day on consumption.

(c) 93 dollars per day on consumption.

(d) 78 dollars per day on consumption.

(e) 117 dollars per day on consumption.

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 98   Discrimination Index: 7
Correct Answer: D

9.1D   In Problem 9.1, if Abishag owned 4 quinces and 15 kumquats, and if the price of kumquats is 2 times the price of quinces, how many kumquats could she afford if she spent all of her money on kumquats?

(a) 34

(b) 19

(c) 15

(d) 17

(e) 14

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

9.2D   Suppose that Mario in Problem 9.2 consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $20 per bushel for each vegetable, but the price of eggplant rose to $40 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would

(a) increase his eggplant consumption by 3.33 bushels.

(b) decrease his eggplant consumption by at least 3.33 bushels.

(c) increase his consumption of eggplant by 5.33 bushels.

(d) decrease his consumption of eggplant by 5.33 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.3D   Dr. *J.* has 80 hours per week to divide between work and leisure. His wage rate if $5 per hour. Dr. *J.* receives a lump sum payment of $250 per week. Suppose that the first $200 per week of his labor income is untaxed, but all labor income above $200 is taxed at a rate of 30 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 50 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 450 and his leisure is 40.

(c) The slope of Dr. $J's$ budget line is everywhere -3.50

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 70   Discrimination Index: 53
Correct Answer: E

9.4D   Dudley, in Problem 9.15, has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $50 per day and is paid a wage of $10 per hour, how many hours of leisure will he choose per day?

(a) 4

(b) 5

(c) 6

(d) 8

(e) 7

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.5D   Mr. Cog in Problem 9.7 has 18 hours a day to divide between labor and leisure If he has 5 dollars of nonlabor income per day and gets a wage rate of 8 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as

(a) $8R + C = 5$

(b) $8R + C = 149$

(c) $R + C/8 = 197$

(d) $C = 149 + 8R$

(e) $C = 164 + 8R$

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

9.6D   Mr. Cog in Problem 9.7 has 18 hours per day to divide between labor and leisure. If he has a nonlabor income of 32 dollars per day and a wage rate of 5 dollars per hour, he will choose a combination of labor and leisure that allows him to spend

(a) 122 dollars per day on consumption.

(b) 51 dollars per day on consumption.

(c) 77 dollars per day on consumption.

(d) 61 dollars per day on consumption.

(e) 91.50 dollars per day on consumption.

Topic: Buying and Selling   Difficulty: 0

% Correct Responses: 98   Discrimination Index: 7

Correct Answer: D

9.1E   In Problem 9.1, if Abishag owned 8 quinces and 15 kumquats, and if the price of kumquats is 2 times the price of quinces, how many kumquats could she afford if she spent all of her money on kumquats?

(a) 38

(b) 23

(c) 15

(d) 19

(e) 16

Topic: Buying and Selling   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

9.2E   Suppose that Mario in Problem 9.2 consumes eggplant and tomatoes in the ratio of one bushel of eggplant per bushel of tomatoes. His garden yields 30 bushels of eggplant and 10 bushels of tomatoes. He initially faced prices of $20 per bushel for each vegetable, but the price of eggplant rose to $60 per bushel, while the price of tomatoes stayed unchanged. After the price change, he would

(a) increase his eggplant consumption by 5 bushels.

(b) decrease his eggplant consumption by at least 5 bushels.

(c) increase his consumption of eggplant by 7 bushels.

(d) decrease his consumption of eggplant by 7 bushels.

(e) decrease his tomato consumption by at least 1 bushel.

Topic: Buying and Selling
Difficulty: 2
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: B

9.3E Dr. *J.* has 80 hours per week to divide between work and leisure. His wage rate if $5 per hour. Dr. *J.* receives a lump sum payment of $50 per week. Suppose that the first $50 per week of his labor income is untaxed, but all labor income above $50 is taxed at a rate of 10 percent.

(a) Dr. $J's$ budget line has a kink in it at the point where he takes 80 units of leisure.

(b) Dr. $J's$ budget line has a kink where his income is 100 and his leisure is 70.

(c) The slope of Dr. $J's$ budget line is everywhere -4.50

(d) Dr. $J's$ budget line has no kinks in the part of it that corresponds to a positive labor supply.

(e) Dr. $J's$ budget line has a piece that is a horizontal straight line.

Topic: Buying and Selling
Difficulty: 1
% Correct Responses: 70
Discrimination Index: 53
Correct Answer: E

9.4E Dudley, in Problem 9.15, has a utility function $U(C, R) = C - (12 - R)^2$, where R is leisure and C is consumption per day. He has 16 hours per day to divide between work and leisure. If Dudley has a nonlabor income of $50 per day and is paid a wage of $2 per hour, how many hours of leisure will he choose per day?

(a) 8

(b) 9

(c) 10

(d) 12

(e) 11

Topic: Buying and Selling   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

9.5E   Mr. Cog in Problem 9.7 has 18 hours a day to divide between labor and leisure If he has 5 dollars of nonlabor income per day and gets a wage rate of 18 dollars per hour when he works, his budget equation, expressing combinations of consumption and leisure that he can afford to have, can be written as

(a) $18R + C = 5$

(b) $18R + C = 329$

(c) $R + C/18 = 437$

(d) $C = 329 + 18R$

(e) $C = 344 + 18R$

Topic: Buying and Selling   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

9.6E   Mr. Cog in Problem 9.7 has 18 hours per day to divide between labor and leisure. If he has a nonlabor income of 42 dollars per day and a wage rate of 10 dollars per hour, he will choose a combination of labor and leisure that allows him to spend

(a) 222 dollars per day on consumption.

(b) 101 dollars per day on consumption.

(c) 132 dollars per day on consumption.

(d) 111 dollars per day on consumption.

(e) 166.50 dollars per day on consumption.

Chapter 10

Intertemporal Choice

Topic: Intertemporal Choice

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

10.1A If Peregrine in Problem 10.1 consumes $(1,500,690)$ and earns $(1,100,1,150)$ and if the interest rate is 0.15, the present value of his endowment is

(a) 2,250.

(b) 2,100.

(c) 2,190.

(d) 4,515.

(e) 5,615.

Topic: Intertemporal Choice

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

10.2A Suppose that Molly from Problem 10.2 had income \$500 in period 1 and income 840 in period 2. Suppose that her utility function were $c_1^a c_2^{1-a}$, where $a = 0.80$ and the interest rate were 0.05.If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would

(a) double.

(b) increase by 400.

(c) increase by 200

(d) stay constant.

(e) increase by 500.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 70   Discrimination Index: 67
Correct Answer: B

10.3A   Mr. O.B. Kandle, of Problem 10.8 has a utility function $c_1 c_2$ where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in period 2. If he had an income of 50,000 in period 1 and the interest rate increased from 10% to 13%,

(a) his savings would increase by 3% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 750.

(c) his consumption in both periods would increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 13% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 77   Discrimination Index: 73
Correct Answer: E

10.4A   Harvey Habit in Problem 10.9 has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 1,025 in period 1, and 1,230 in period 2, and if the interest rate were 0.05, how much would Harvey choose to spend on bread in period 1?

(a) 1,687.50

(b) 375

(c) 562.50

(d) 2,250

(e) 1,125

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.5A   In the village in Problem 10.10, if the harvest this year is 6,000 and the harvest next year will be 1,100, and if rats eat 10% of any grain that is stored for a year, how much grain could the villagers consume next year if they consume 1000 bushels of grain this year.

(a) 5,600

(b) 4,500

(c) 7,100

(d) 8,400

(e) 1,200

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

10.6A   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.83 \ c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 6 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 1.20

(b) 0.10

(c) 0.20

(d) 0

(e) 0.30

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: A

10.7A   Let i be the rate of inflation and r the nominal interest rate.(We use pi to denote the rate of inflation in the book.) The (exact) real rate of interest is given by:

(a) $(r - i)/(i + 1)$

(b) $(r + i)/(i + 1)$

(c) $(r + i)/(i - 1)$

(d) $(r - i)/(i - 1)$

(e) $r - i/r$

Multiple Choice   Intertemporal Choice

10.1B If Peregrine in Problem 10.1 consumes ($1,700, 1,100$) and earns ($1,400, 1,430$) and if the interest rate is 0.10, the present value of his endowment is

(a) 2,830.

(b) 2,700.

(c) 2,800.

(d) 5,670.

(e) 7,070.

10.2B Suppose that Molly from Problem 10.2 had income \$400 in period 1 and income 440 in period 2. Suppose that her utility function were $c_1^a c_2^{1-a}$, where $a = 0.20$ and the interest rate were 0.10. If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would

(a) double.

(b) increase by 80.

(c) increase by 40

(d) stay constant.

(e) increase by 400.

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 70 Discrimination Index: 67
Correct Answer: B

10.3B Mr. O.B. Kandle, of Problem 10.8 has a utility function $c_1 c_2$ where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in period 2. If he had an income of 70,000 in period 1 and the interest rate increased from 10% to 11%,

(a) his savings would increase by 1% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 350.

(c) his consumption in both periods would increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 11% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 77 Discrimination Index: 73
Correct Answer: E

10.4B Harvey Habit in Problem 10.9 has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 1,025 in period 1, and 410 in period 2, and if the interest rate were 0.05, how much would Harvey choose to spend on bread in period 1?

(a) 1,087.50

(b) 241.67

(c) 362.50

(d) 1,450

(e) 725

Topic: Intertemporal Choice Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: A

10.5B In the village in Problem 10.10, if the harvest this year is 3,000 and the harvest next year will be 900, and if rats eat 30% of any grain that is stored for a year, how much grain could the villagers consume next year if they consume 1000 bushels of grain this year.

(a) 2,300

(b) 1,400

(c) 3,900

(d) 3,450

(e) 1,000

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

10.6B   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.87\ c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 2 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 0.30

(b) 0.08

(c) 0.15

(d) 0

(e) 0.23

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: A

10.7A   Let i be the rate of inflation and r the nominal interest rate.(We use pi to denote the rate of inflation in the book.) The (exact) real rate of interest is given by:

(a) $(r - i)/(i + 1)$

(b) $(r + i)/(i + 1)$

(c) $(r + i)/(i - 1)$

(d) $(r - i)/(i - 1)$

(e) $r - i/r$

Multiple Choice   Intertemporal Choice

10.1C   If Peregrine in Problem 10.1 consumes ($1,500, 1, 155$) and earns ($1, 100, 1, 575$) and if the interest rate is 0.05, the present value of his endowment is

(a) 2,675.

(b) 2,600.

(c) 2,655.

(d) 5,330.

(e) 6,430.

10.2C   Suppose that Molly from Problem 10.2 had income $700 in period 1 and income 960 in period 2. Suppose that her utility function were $c_1^a c_2^{1-a}$, where $a = 0.60$ and the interest rate were 0.20.If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would

(a) double.

(b) increase by 420.

(c) increase by 210

(d) stay constant.

(e) increase by 700.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 70   Discrimination Index: 67
Correct Answer: B

10.3C   Mr. O.B. Kandle, of Problem 10.8 has a utility function c_1c_2 where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in period 2. If he had an income of 50,000 in period 1 and the interest rate increased from 10% to 19%,

(a) his savings would increase by 9% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 2,250.

(c) his consumption in both periods would increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 19% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 77   Discrimination Index: 73
Correct Answer: E

10.4C   Harvey Habit in Problem 10.9 has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 820 in period 1, and 410 in period 2, and if the interest rate were 0.05, how much would Harvey choose to spend on bread in period 1?

(a) 930

(b) 206.67

(c) 310

(d) 1,240

(e) 620

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.5C   In the village in Problem 10.10, if the harvest this year is 5,000 and the harvest next year will be 1,000, and if rats eat 40% of any grain that is stored for a year, how much grain could the villagers consume next year if they consume 1000 bushels of grain this year.

(a) 3,400

(b) 2,400

(c) 6,000

(d) 5,100

(e) 1,100

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

10.6C   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.95\ c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 3 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 0.15

(b) 0.03

(c) 0.05

(d) 0

(e) 0.08

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: A

10.7A   Let i be the rate of inflation and r the nominal interest rate.(We use pi to denote the rate of inflation in the book.) The (exact) real rate of interest is given by:

(a) $(r - i)/(i + 1)$

(b) $(r + i)/(i + 1)$

(c) $(r + i)/(i - 1)$

(d) $(r - i)/(i - 1)$

(e) $r - i/r$

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.1D   If Peregrine in Problem 10.1 consumes ($1,700, 1,050$) and earns ($1,400, 1,365$) and if the interest rate is 0.05, the present value of his endowment is

(a) 2,765.

(b) 2,700.

(c) 2,750.

(d) 5,535.

(e) 6,935.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.2D   Suppose that Molly from Problem 10.2 had income $600 in period 1 and income 220 in period 2. Suppose that her utility function were $c_1^a c_2^{1-a}$, where $a = 0.60$ and the interest rate were 0.10.If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would

(a) double.

(b) increase by 360.

(c) increase by 180

(d) stay constant.

(e) increase by 600.

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 70

Discrimination Index: 67

Correct Answer: B

10.3D   Mr. O.B. Kandle, of Problem 10.8 has a utility function c_1c_2 where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in period 2. If he had an income of 60,000 in period 1 and the interest rate increased from 10% to 17%,

(a) his savings would increase by 7% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 2,100.

(c) his consumption in both periods would increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 17% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 77

Discrimination Index: 73

Correct Answer: E

10.4D   Harvey Habit in Problem 10.9 has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 1,320 in period 1, and 1,320 in period 2, and if the interest rate were 0.20, how much would Harvey choose to spend on bread in period 1?

(a) 1,980

(b) 440

(c) 660

(d) 2,640

(e) 1,320

Topic: Intertemporal Choice

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

10.5D   In the village in Problem 10.10, if the harvest this year is 3,000 and the harvest next year will be 1,100, and if rats eat 40% of any grain that is stored for a year, how much grain could the villagers consume next year if they consume 1000 bushels of grain this year.

(a) 2,300

(b) 1,200

(c) 4,100

(d) 3,450

(e) 1,200

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

10.6D   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.83\ c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 3 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 0.60

(b) 0.10

(c) 0.20

(d) 0

(e) 0.30

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: A

10.7A   Let i be the rate of inflation and r the nominal interest rate.(We use pi to denote the rate of inflation in the book.) The (exact) real rate of interest is given by:

(a) $(r - i)/(i + 1)$

(b) $(r + i)/(i + 1)$

(c) $(r + i)/(i - 1)$

(d) $(r - i)/(i - 1)$

(e) $r - i/r$

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.1E   If Peregrine in Problem 10.1 consumes (900, 960) and earns (800, 1, 080) and if the interest rate is 0.20, the present value of his endowment is

(a) 1,880.

(b) 1,700.

(c) 1,860.

(d) 3,740.

(e) 4,540.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

10.2E   Suppose that Molly from Problem 10.2 had income \$600 in period 1 and income 920 in period 2. Suppose that her utility function were $c_1^a c_2^{1-a}$, where $a = 0.80$ and the interest rate were 0.15.If her income in period 1 doubled and her income in period 2 stayed the same, her consumption in period 1 would

(a) double.

(b) increase by 480.

(c) increase by 240

(d) stay constant.

(e) increase by 600.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 70   Discrimination Index: 67
Correct Answer: B

10.3E   Mr. O.B. Kandle, of Problem 10.8 has a utility function c_1c_2 where c_1 is his consumption in period 1 and c_2 is his consumption in period 2. He will have no income in period 2. If he had an income of 10,000 in period 1 and the interest rate increased from 10% to 13%,

(a) his savings would increase by 3% and his consumption in period 2 would also increase.

(b) his savings would not change, but his consumption in period 2 would increase by 150.

(c) his consumption in both periods would increase.

(d) his consumption in both periods would decrease.

(e) his consumption in period 1 would decrease by 13% and his consumption in period 2 would also decrease.

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 77   Discrimination Index: 73
Correct Answer: E

10.4E   Harvey Habit in Problem 10.9 has a utility function $U(c_1, c_2) = min\{c_1, c_2\}$. If he had an income of 420 in period 1, and 840 in period 2, and if the interest rate were 0.10, how much would Harvey choose to spend on bread in period 1?

(a) 930

(b) 206.67

(c) 310

(d) 1,240

(e) 620

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

10.5E   In the village in Problem 10.10, if the harvest this year is 5,000 and the harvest next year will be 1,200, and if rats eat 40% of any grain that is stored for a year, how much grain could the villagers consume next year if they consume 1000 bushels of grain this year.

(a) 3,600

(b) 2,400

(c) 6,200

(d) 5,400

(e) 1,300

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

10.6E   Patience has a utility function $U(c_1, c_2) = c_1^{1/2} + 0.91 \, c_2^{1/2}$, c_1 is her consumption in period 1 and c_2 is her consumption in period 2. Her income in period 1 is 5 times as large as her income in period 2. At what interest rate will she choose to consume the same amount in period 1 as in period 2?

(a) 0.50

(b) 0.05

(c) 0.10

(d) 0

(e) 0.15

Topic: Intertemporal Choice   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 27
Correct Answer: A

10.7A   Let i be the rate of inflation and r the nominal interest rate.(We use pi to denote the rate of inflation in the book.) The (exact) real rate of interest is given by:

(a) $(r - i)/(i + 1)$

(b) $(r + i)/(i + 1)$

(c) $(r + i)/(i - 1)$

(d) $(r - i)/(i - 1)$

(e) $r - i/r$

Chapter 11

Multiple Choice   Asset Markets

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.1A   Ashley, in Problem 11.6, has discovered another wine, Wine D. Wine drinkers are willing to pay 60 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 10 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 68

(b) 60

(c) 100

(d) 660

(e) 81

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.2A   Chillingsworth, from Problem 11.10 has a neighbor, Shivers, who faces the same options for insulating his house as Chillingsworth. But Shivers has a larger house. Shivers' annual fuel bill for home heating is 600 dollars per year. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 600 dollars, Plan B would cost him 1,200 and Plan C would cost him 6,600 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

11.3A   The price of an antique is expected to rise by 7% during the next year. The interest rate is 8%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 700 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique. (See Problem 11.5)

(a) 8,750

(b) 14,700

(c) 700

(d) 70,000

(e) 7,000

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.4A   A bond has a face value of 8,000 dollars. It will pay 800 dollars in interest at the end of every year for the next 43 years. At the time of the final interest payment, 43 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company buys back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 8,000

(b) 42,400

(c) 34,400

(d) More than any of the above numbers

(e) Less than any of the above numbers

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

11.5A   The sum of the terms of the infinite geometric series 1, 0.87, 0.87^2, 0.87^3,...., is closest to the following.

(a) infinity

(b) 1.87

(c) 7.69

(d) 0.53

(e) 114.94

Topic: Asset Markets   Difficulty: 0
% Correct Responses: 81   Discrimination Index: 47
Correct Answer: A

11.6A   If the interest rate is 12%, and will remain 12% forever, how much would a rational investor be willing to pay for an asset that will pay him 6,720 dollars one year from now, 1,254 dollars two years from now, and nothing at any other time.

(a) 7,000

(b) 6,000

(c) 58,333.33

(d) 91,000

(e) 8,000

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.1B   Ashley, in Problem 11.6, has discovered another wine, Wine D. Wine drinkers are willing to pay 200 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 25 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 206

(b) 200

(c) 250

(d) 2,200

(e) 236

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.2B   Chillingsworth, from Problem 11.10 has a neighbor, Shivers, who faces the same options for insulating his house as Chillingsworth. But Shivers has a larger house. Shivers' annual fuel bill for home heating is 900 dollars per year. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 900 dollars, Plan B would cost him 1,600 and Plan C would cost him 9,900 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

11.3B   The price of an antique is expected to rise by 8% during the next year. The interest rate is 12%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 800 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique. (See Problem 11.5)

(a) 6,666.67

(b) 16,800

(c) 800

(d) 20,000

(e) 8,000

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.4B   A bond has a face value of 2,000 dollars. It will pay 200 dollars in interest at the end of every year for the next 43 years. At the time of the final interest payment, 43 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company buys back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 2,000

(b) 10,600

(c) 8,600

(d) More than any of the above numbers

(e) Less than any of the above numbers

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

11.5B The sum of the terms of the infinite geometric series 1, 0.88, 0.88^2, 0.88^3,...., is closest to the following.

(a) infinity

(b) 1.88

(c) 8.33

(d) 0.53

(e) 113.64

Topic: Asset Markets

Difficulty: 0

% Correct Responses: 81

Discrimination Index: 47

Correct Answer: A

11.6B If the interest rate is 2%, and will remain 2% forever, how much would a rational investor be willing to pay for an asset that will pay him 2,040 dollars one year from now, 1,040 dollars two years from now, and nothing at any other time.

(a) 3,000

(b) 2,000

(c) 150,000

(d) 9,000

(e) 4,000

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

11.1C   Ashley, in Problem 11.6, has discovered another wine, Wine D. Wine drinkers are willing to pay 75 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 15 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 93

(b) 75

(c) 150

(d) 825

(e) 101

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

11.2C   Chillingsworth, from Problem 11.10 has a neighbor, Shivers, who faces the same options for insulating his house as Chillingsworth. But Shivers has a larger house. Shivers' annual fuel bill for home heating is 800 dollars per year. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 800 dollars, Plan B would cost him 1,300 and Plan C would cost him 8,800 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

11.3C   The price of an antique is expected to rise by 5% during the next year. The interest rate is 6%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 500 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique. (See Problem 11.5)

(a) 8,333.33

(b) 10,500

(c) 500

(d) 50,000

(e) 5,000

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.4C   A bond has a face value of 4,000 dollars. It will pay 400 dollars in interest at the end of every year for the next 48 years. At the time of the final interest payment, 48 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company buys back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 4,000

(b) 23,200

(c) 19,200

(d) More than any of the above numbers

(e) Less than any of the above numbers

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

11.5C   The sum of the terms of the infinite geometric series 1, 0.87, 0.87^2, 0.87^3,...., is closest to the following.

(a) infinity

(b) 1.87

(c) 7.69

(d) 0.53

(e) 114.94

Topic: Asset Markets   Difficulty: 0

% Correct Responses: 81   Discrimination Index: 47

Correct Answer: A

11.6C   If the interest rate is 19%, and will remain 19% forever, how much would a rational investor be willing to pay for an asset that will pay him 4,760 dollars one year from now, 1,416 dollars two years from now, and nothing at any other time.

(a) 5,000

(b) 4,000

(c) 26,315.79

(d) 100,000

(e) 6,000

Multiple Choice   # Asset Markets

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

11.1D   Ashley, in Problem 11.6, has discovered another wine, Wine D. Wine drinkers are willing to pay 50 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 10 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 62

(b) 50

(c) 100

(d) 550

(e) 71

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

11.2D   Chillingsworth, from Problem 11.10 has a neighbor, Shivers, who faces the same options for insulating his house as Chillingsworth. But Shivers has a larger house. Shivers' annual fuel bill for home heating is 900 dollars per year. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 900 dollars, Plan B would cost him 1,600 and Plan C would cost him 9,900 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

11.3D   The price of an antique is expected to rise by 3% during the next year. The interest rate
is 6%. You are thinking of buying an antique and selling it a year from now. You would be willing
to pay a total of 300 dollars for the pleasure of owning the antique for a year. How much would
you be willing to pay to buy this antique. (See Problem 11.5)

(a) 5,000

(b) 6,300

(c) 300

(d) 10,000

(e) 3,000

Topic: Asset Markets   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

11.4D   A bond has a face value of 9,000 dollars. It will pay 900 dollars in interest at the end of
every year for the next 44 years. At the time of the final interest payment, 44 years from now, the
company that issued the bond will "redeem the bond at face value". That is, the company buys
back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10%
and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 9,000

(b) 48,600

(c) 39,600

(d) More than any of the above numbers

(e) Less than any of the above numbers

Topic: Asset Markets
% Correct Responses: 0
Correct Answer: C

Difficulty: 2
Discrimination Index: 0

11.5D The sum of the terms of the infinite geometric series 1, 0.89, 0.89^2, 0.89^3,...., is closest to the following.

(a) infinity

(b) 1.89

(c) 9.09

(d) 0.53

(e) 112.36

Topic: Asset Markets
% Correct Responses: 81
Correct Answer: A

Difficulty: 0
Discrimination Index: 47

11.6D If the interest rate is 14%, and will remain 14% forever, how much would a rational investor be willing to pay for an asset that will pay him 10,260 dollars one year from now, 1,299 dollars two years from now, and nothing at any other time.

(a) 10,000

(b) 9,000

(c) 71,428.57

(d) 150,000

(e) 11,000

Multiple Choice

Asset Markets

11.1E   Ashley, in Problem 11.6, has discovered another wine, Wine D. Wine drinkers are willing to pay 75 dollars to drink it right now. The amount that wine drinkers are willing to pay will rise by 15 dollars each year that the wine ages. The interest rate is 10%. How much would Ashley be willing to pay for the wine if he buys it as an investment? (Pick the closest answer.)

(a) 93

(b) 75

(c) 150

(d) 825

(e) 101

11.2E   Chillingsworth, from Problem 11.10 has a neighbor, Shivers, who faces the same options for insulating his house as Chillingsworth. But Shivers has a larger house. Shivers' annual fuel bill for home heating is 1,200 dollars per year. Plan A will reduce his annual fuel bill by 15%, plan B will reduce it by 20%, and plan C will eliminate his need for heating fuel altogether. The Plan A insulation job would cost Shivers 1,200 dollars, Plan B would cost him 1,700 and Plan C would cost him 13,200 dollars. If the interest rate is 10% and his house and the insulation job last forever, which plan is the best for Shivers?

(a) Plan A.

(b) Plan B.

(c) Plan C.

(d) Plans A and B are equally good.

(e) He is best off using none of the plans.

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

11.3E The price of an antique is expected to rise by 9% during the next year. The interest rate is 10%. You are thinking of buying an antique and selling it a year from now. You would be willing to pay a total of 900 dollars for the pleasure of owning the antique for a year. How much would you be willing to pay to buy this antique. (See Problem 11.5)

(a) 9,000

(b) 18,900

(c) 900

(d) 90,000

(e) 9,000

Topic: Asset Markets

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

11.4E A bond has a face value of 9,000 dollars. It will pay 900 dollars in interest at the end of every year for the next 46 years. At the time of the final interest payment, 46 years from now, the company that issued the bond will "redeem the bond at face value". That is, the company buys back the bond from its owner at a price equal to the face value of the bond. If the interest rate is 10% and is expected to remain at 10%, how much would a rational investor pay for this bond right now?

(a) 9,000

(b) 50,400

(c) 41,400

(d) More than any of the above numbers

(e) Less than any of the above numbers

Topic: Asset Markets   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

11.5E   The sum of the terms of the infinite geometric series 1, 0.84, 0.84^2, 0.84^3,...., is closest to the following.

(a) infinity

(b) 1.84

(c) 6.25

(d) 0.54

(e) 119.05

Topic: Asset Markets   Difficulty: 0

% Correct Responses: 81   Discrimination Index: 47

Correct Answer: A

11.6E   If the interest rate is 7%, and will remain 7% forever, how much would a rational investor be willing to pay for an asset that will pay him 7,490 dollars one year from now, 1,144 dollars two years from now, and nothing at any other time.

(a) 8,000

(b) 7,000

(c) 114,285.71

(d) 64,000

(e) 9,000

Chapter 12

Uncertainty

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

12.1A   In Problem 12.9, Billy has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 9 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 2,710

(b) between 8 million and 9 million dollars.

(c) 100,000.

(d) 5,420

(e) 10,840

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.2A   (See Prob 12.2) Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1 - p$ is the probability of no flood and where c_f and c_nf are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/15$. The value of Willy's factory is \$800,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$5x/19$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy

(a) no insurance since the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/25 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/6 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/11 of what it would be if there is no flood.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.3A   Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 2,000$, $u(x) = 2x$ and where $u(x) = 4,000 + x$ for x greater than or equal to 2,000.

(a) Sally will be risk averse if her income is less than 2,000 but risk loving if her income is more than 2,000.

(b) Sally will be risk neutral if her income is less than 2,000 and risk averse if her income is more than 2,000.

(c) For bets that involve no chance of her wealth exceeding 2,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 4,000.

(e) None of the above are true.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

12.4A   (See Problem 12.11) Pete's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1-p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of $\$Z$ or a lottery in which he receives $4,900 with probability 0.70 and he receives $12,100 with probability 0.30. Wilbur will choose the sure payment if

(a) $Z > 6,724$ and the lottery if $Z < 6,724$.

(b) $Z > 5,812$ and the lottery if $Z < 5,812$.

(c) $Z > 12,100$ and the lottery if $Z < 12,100$.

(d) $Z > 9,412$ and the lottery if $Z < 9,412$.

(e) $Z > 7,060$ and the lottery if $Z < 7,060$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

12.5A Clancy has $4,200. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $3 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $7 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 700 Sullivan tickets and 300 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 350 Sullivan tickets and 150 Flanagan tickets.

(e) Buy 350 Sullivan tickets and 300 Flanagan tickets.

Multiple Choice   Uncertainty

12.1B   In Problem 12.9, Billy has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 25 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 4,510

(b) between 24 million and 25 million dollars.

(c) 100,000.

(d) 9,020

(e) 18,040

12.2B   (See Prob 12.2) Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1-p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/16$. The value of Willy's factory is \$800,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$x worth of insurance, he must pay the insurance company \$4x/19 whether there is a flood or not, but he gets back \$x from the company if there is a flood. Willy should buy

(a) no insurance since the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/16 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/5 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/9 of what it would be if there is no flood.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

12.3B Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 8,000$, $u(x) = 2x$ and where $u(x) = 16,000 + x$ for x greater than or equal to 8,000.

(a) Sally will be risk averse if her income is less than 8,000 but risk loving if her income is more than 8,000.

(b) Sally will be risk neutral if her income is less than 8,000 and risk averse if her income is more than 8,000.

(c) For bets that involve no chance of her wealth exceeding 8,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 16,000.

(e) None of the above are true.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

12.4B (See Problem 12.11) Martin's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1 - p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of $\$Z$ or a lottery in which he receives $\$1,600$ with probability 0.90 and he receives $\$12,100$ with probability 0.10. Wilbur will choose the sure payment if

(a) $Z > 2,209$ and the lottery if $Z < 2,209$.

(b) $Z > 1,904.50$ and the lottery if $Z < 1,904.50$.

(c) $Z > 12,100$ and the lottery if $Z < 12,100$.

(d) $Z > 7,154.50$ and the lottery if $Z < 7,154.50$.

(e) $Z > 2,650$ and the lottery if $Z < 2,650$.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

12.5B   Clancy has $1,800. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $1 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $9 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 900 Sullivan tickets and 100 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 450 Sullivan tickets and 50 Flanagan tickets.

(e) Buy 450 Sullivan tickets and 100 Flanagan tickets.

Multiple Choice   # Uncertainty

12.1C   In Problem 12.9, Billy has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 9 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 2,710

(b) between 8 million and 9 million dollars.

(c) 100,000.

(d) 5,420

(e) 10,840

12.2C   (See Prob 12.2) Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1 - p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/11$. The value of Willy's factory is \$900,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$3x/13$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy

(a) no insurance since the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/9 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/4 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/7 of what it would be if there is no flood.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

12.3C Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 4,000$, $u(x) = 2x$ and where $u(x) = 8,000 + x$ for x greater than or equal to 4,000.

(a) Sally will be risk averse if her income is less than 4,000 but risk loving if her income is more than 4,000.

(b) Sally will be risk neutral if her income is less than 4,000 and risk averse if her income is more than 4,000.

(c) For bets that involve no chance of her wealth exceeding 4,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 8,000.

(e) None of the above are true.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

12.4C (See Problem 12.11) Rob's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1-p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of \$$Z$ or a lottery in which he receives \$900 with probability 0.30 and he receives \$3,600 with probability 0.70. Wilbur will choose the sure payment if

(a) $Z > 2,601$ and the lottery if $Z < 2,601$.

(b) $Z > 1,750.50$ and the lottery if $Z < 1,750.50$.

(c) $Z > 3,600$ and the lottery if $Z < 3,600$.

(d) $Z > 3,100.50$ and the lottery if $Z < 3,100.50$.

(e) $Z > 2,790$ and the lottery if $Z < 2,790$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

12.5C   Clancy has $4,200. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $3 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $7 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 700 Sullivan tickets and 300 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 350 Sullivan tickets and 150 Flanagan tickets.

(e) Buy 350 Sullivan tickets and 300 Flanagan tickets.

Multiple Choice   Uncertainty

12.1D   In Problem 12.9, Billy has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 25 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 4,510

(b) between 24 million and 25 million dollars.

(c) 100,000.

(d) 9,020

(e) 18,040

12.2D   (See Prob 12.2) Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1-p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/10$. The value of Willy's factory is \$500,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$4x/13$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy

(a) no insurance since the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/16 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/5 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/9 of what it would be if there is no flood.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

12.3D   Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 4,000$, $u(x) = 2x$ and where $u(x) = 8,000 + x$ for x greater than or equal to 4,000.

(a) Sally will be risk averse if her income is less than 4,000 but risk loving if her income is more than 4,000.

(b) Sally will be risk neutral if her income is less than 4,000 and risk averse if her income is more than 4,000.

(c) For bets that involve no chance of her wealth exceeding 4,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 8,000.

(e) None of the above are true.

Topic: Uncertainty   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

12.4D   (See Problem 12.11) Tiny's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1-p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of \$$Z$ or a lottery in which he receives \$2,500 with probability 0.80 and he receives \$900 with probability 0.20. Wilbur will choose the sure payment if

(a) $Z > 2,116$ and the lottery if $Z < 2,116$.

(b) $Z > 2,308$ and the lottery if $Z < 2,308$.

(c) $Z > 900$ and the lottery if $Z < 900$.

(d) $Z > 1,508$ and the lottery if $Z < 1,508$.

(e) $Z > 2,180$ and the lottery if $Z < 2,180$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

12.5D Clancy has $4,800. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $6 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $4 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 400 Sullivan tickets and 600 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 200 Sullivan tickets and 300 Flanagan tickets.

(e) Buy 200 Sullivan tickets and 600 Flanagan tickets.

Multiple Choice   Uncertainty

12.1E   In Problem 12.9, Billy has a von Neumann-Morgenstern utility function $U(c) = c^{1/2}$. If Billy is not injured this season, he will receive an income of 4 million dollars. If he is injured, his income will be only \$10,000. The probability that he will be injured is .1 and the probability that he will not be injured is .9. His expected utility is

(a) 1,810

(b) between 3 million and 4 million dollars.

(c) 100,000.

(d) 3,620

(e) 7,240

12.2E   (See Prob 12.2) Willy's only source of wealth is his chocolate factory. He has the utility function $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$ where p is the probability of a flood, $1 - p$ is the probability of no flood and where c_f and c_{nf} are his wealth contingent on a flood and on no flood, respectively. The probability of flood is $p = 1/18$. The value of Willy's factory is \$900,000 if there is no flood and 0 if there is a flood. Willy can buy insurance where if he buys \$$x$ worth of insurance, he must pay the insurance company \$$3x/20$ whether there is a flood or not, but he gets back \$$x$ from the company if there is a flood. Willy should buy

(a) no insurance since the cost per dollar of insurance exceeds the probability of a flood.

(b) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/9 of what it would be if there is no flood.

(c) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be the same whether there is a flood or not.

(d) enough insurance so that if there is a flood, after he collects his insurance, his wealth will be 1/4 of what it would be if there is no flood.

(e) enough insurance so that if there is a flood, after he collects his insurance his wealth will be 1/7 of what it would be if there is no flood.

12.3E Sally Kink is an expected utility maximizer with utility function $pu(c_1) + (1-p)u(c_2)$ where for any $x < 3,000$, $u(x) = 2x$ and where $u(x) = 6,000 + x$ for x greater than or equal to 3,000.

(a) Sally will be risk averse if her income is less than 3,000 but risk loving if her income is more than 3,000.

(b) Sally will be risk neutral if her income is less than 3,000 and risk averse if her income is more than 3,000.

(c) For bets that involve no chance of her wealth exceeding 3,000, Sally will take any bet that has a positive expected net payoff.

(d) Sally will never take a bet if there is a chance that it leaves her with wealth less than 6,000.

(e) None of the above are true.

12.4E (See Problem 12.11) Ed's expected utility function is $pc_1^{1/2} + (1-p)c_2^{1/2}$ where p is the probability that he consumes c_1 and $1-p$ is the probability that he consumes c_2. Wilbur is offered a choice between getting a sure payment of $\$Z$ or a lottery in which he receives \$1,600 with probability 0.10 and he receives \$10,000 with probability 0.90. Wilbur will choose the sure payment if

(a) $Z > 8,836$ and the lottery if $Z < 8,836$.

(b) $Z > 5,218$ and the lottery if $Z < 5,218$.

(c) $Z > 10,000$ and the lottery if $Z < 10,000$.

(d) $Z > 9,418$ and the lottery if $Z < 9,418$.

(e) $Z > 9,160$ and the lottery if $Z < 9,160$.

Topic: Uncertainty

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

12.5E Clancy has $5,000. He plans to bet on a boxing match between Sullivan and Flanagan. He finds that he can buy coupons for $5 that will pay off $10 each if Sullivan wins. He also finds in another store some coupons that will pay off $10 if Flanagan wins. The Flanagan tickets cost $5 each. Clancy believes that the two fighters each have a probability of 1/2 of winning. Clancy is a risk averter who tries to maximize the expected value of the natural log of his wealth. Which of the following strategies would maximize his expected utility?

(a) Don't gamble at all.

(b) Buy 500 Sullivan tickets and 500 Flanagan tickets.

(c) Buy exactly as many Flanagan tickets as Sullivan tickets.

(d) Buy 250 Sullivan tickets and 250 Flanagan tickets.

(e) Buy 250 Sullivan tickets and 500 Flanagan tickets.

Chapter 13

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

13.1A   Suppose that Ms Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 10% and a risky asset with expected rate of return 40%, with standard deviation 10. If she chooses a portfolio with expected rate of return 17.50%, then the standard deviation of her return on this portfolio will be

(a) 1.25%.

(b) 5.50%.

(c) 2.50%.

(d) 5%.

(e) None of the other options are correct.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

13.2A   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 15 with zero standard deviation and one of which gives him an expected rate of return of 20 and has a standard deviation of 5. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is

(a) 1.

(b) −1.

(c) 0.50.

(d) −0.50.

(e) 1.50.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

13.1B   Suppose that Ms Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 5% and a risky asset with expected rate of return 15%, with standard deviation 5. If she chooses a portfolio with expected rate of return 7.50%, then the standard deviation of her return on this portfolio will be

(a) 0.63%.

(b) 4.25%.

(c) 1.25%.

(d) 2.50%.

(e) None of the other options are correct.

Topic: Risky Assets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

13.2B   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 15 with zero standard deviation and one of which gives him an expected rate of return of 60 and has a standard deviation of 15. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is

(a) 3.

(b) −3.

(c) 1.50.

(d) −1.50.

(e) 4.50.

Topic: Risky Assets   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

13.1C   Suppose that Ms Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 10% and a risky asset with expected rate of return 15%, with standard deviation 5. If she chooses a portfolio with expected rate of return 11.25%, then the standard deviation of her return on this portfolio will be

(a) 0.63%.

(b) 4.25%.

(c) 1.25%.

(d) 2.50%.

(e) None of the other options are correct.

Topic: Risky Assets   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

13.2C   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 15 with zero standard deviation and one of which gives him an expected rate of return of 75 and has a standard deviation of 15. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is

(a) 4.

(b) −4.

(c) 2.

(d) −2.

(e) 6.

13.1D   Suppose that Ms Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 15% and a risky asset with expected rate of return 30%, with standard deviation 5. If she chooses a portfolio with expected rate of return 22.50%, then the standard deviation of her return on this portfolio will be

(a) 1.25%.

(b) 5.50%.

(c) 2.50%.

(d) 5%.

(e) None of the other options are correct.

13.2D   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 10 with zero standard deviation and one of which gives him an expected rate of return of 30 and has a standard deviation of 10. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is

(a) 2.

(b) −2.

(c) 1.

(d) −1.

(e) 3.

13.1E   Suppose that Ms Lynch in Problem 13.1 can make up her portfolio using a risk-free asset that offers a sure-fire rate of return of 10% and a risky asset with expected rate of return 40%, with standard deviation 10. If she chooses a portfolio with expected rate of return 40%, then the standard deviation of her return on this portfolio will be

(a) 5%.

(b) 13%.

(c) 10%.

(d) 20%.

(e) None of the other options are correct.

13.2E   Suppose that Fenner Smith of Problem 13.2 must divide his portfolio between two assets, one of which gives him an expected rate of return of 15 with zero standard deviation and one of which gives him an expected rate of return of 75 and has a standard deviation of 15. He can alter the expected rate of return and the variance of his portfolio by changing the proportions in which he holds the two assets. If we draw a "budget line" with expected return on the vertical axis and standard deviation on the horizontal axis, depicting the combinations that Smith can obtain, the slope of this budget line is

(a) 4.

(b) −4.

(c) 2.

(d) −2.

(e) 6.

Chapter 14

Multiple Choice   Consumer's Surplus

Topic: Consumer's Surplus   Difficulty: 1
% Correct Responses: 51   Discrimination Index: 60
Correct Answer: A

14.1A   In Problem 14.1, Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 95, how much is Sir Plus's net consumer surplus?

(a) 12.50

(b) 5

(c) 25

(d) 6.25

(e) 9,500

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 52   Discrimination Index: 85
Correct Answer: A

14.2A   Ms Quasimodo in Problem 14.3 has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is her consumption of earplugs and m is money left over to spend on other stuff. If she has \$10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from \$50 to 75, then his net consumer's surplus

(a) falls by 937.50.

(b) falls by 2,937.50.

(c) falls by 625.

(d) increases by 468.75.

(e) increases by 1,875.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

14.3A   Bernice in Problem 14.5 has the utility function $u(x,y) = min\{x,y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of $19 per week and was paying a price of $7 per pair of earrings, then if the price of earrings rose to $10, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) $5.18.

(b) $7.13.

(c) $15.25.

(d) $14.25.

(e) $13.25.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

14.4A   If Bernice (whose utility function is $min\{x,y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of $ 16 and was paying a price of $8 for earrings when the price of earrings went up to $9, then the equivalent variation of the price change was

(a) $1.60.

(b) $1.78.

(c) $3.56.

(d) $0.80.

(e) $1.69.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

14.5A In Problem 14.7, Lolita's utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.20, the price of hay is 1, and her income is 2, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 2.32.

(b) 1.80.

(c) 0.32.

(d) 3.32.

(e) 1.32.

Topic: Consumer's Surplus

Difficulty: 0

% Correct Responses: 60

Discrimination Index: 67

Correct Answer: A

14.6A Kitty's utility function for BMWs and money is given by $11,000x + y$, where x is the number of BMWs she has and y is the amount of money she has. Her income is 23,000. Her reservation price for one BMW is:

(a) 11,000

(b) $11,000 - y$

(c) 12,000

(d) $11,000 - p$

(e) 34,000

Topic: Consumer's Surplus   Difficulty: 1

% Correct Responses: 51   Discrimination Index: 60

Correct Answer: A

14.1B   In Problem 14.1, Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 60, how much is Sir Plus's net consumer surplus?

(a) 800

(b) 40

(c) 1,600

(d) 400

(e) 3,900

Topic: Consumer's Surplus   Difficulty: 2

% Correct Responses: 52   Discrimination Index: 85

Correct Answer: A

14.2B   Ms Quasimodo in Problem 14.3 has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is her consumption of earplugs and m is money left over to spend on other stuff. If she has \$10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from \$50 to 95, then his net consumer's surplus

(a) falls by 1,237.50.

(b) falls by 3,237.50.

(c) falls by 225.

(d) increases by 618.75.

(e) increases by 2,475.

Topic: Consumer's Surplus   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

14.3B Bernice in Problem 14.5 has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of \$14 per week and was paying a price of \$1 per pair of earrings, then if the price of earrings rose to \$6, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) \$10.

(b) \$35.

(c) \$71.

(d) \$70.

(e) \$69.

Topic: Consumer's Surplus   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

14.4B If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of \$ 19 and was paying a price of \$4 for earrings when the price of earrings went up to \$7, then the equivalent variation of the price change was

(a) \$7.13.

(b) \$11.40.

(c) \$22.80.

(d) \$3.56.

(e) \$9.26.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

14.5B   In Problem 14.7, Lolita's utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.30, the price of hay is 1, and her income is 4, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 4.25.

(b) 3.70.

(c) 0.25.

(d) 6.25.

(e) 2.25.

Topic: Consumer's Surplus   Difficulty: 0
% Correct Responses: 60   Discrimination Index: 67
Correct Answer: A

14.6B   Flora's utility function for BMWs and money is given by $17,000x + y$, where x is the number of BMWs she has and y is the amount of money she has. Her income is 23,000. Her reservation price for one BMW is:

(a) 17,000

(b) $17,000 - y$

(c) 6,000

(d) $17,000 - p$

(e) 40,000

Topic: Consumer's Surplus   Difficulty: 1

% Correct Responses: 51   Discrimination Index: 60

Correct Answer: A

14.1C   In Problem 14.1, Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 85, how much is Sir Plus's net consumer surplus?

(a) 112.50

(b) 15

(c) 225

(d) 56.25

(e) 7,650

Topic: Consumer's Surplus   Difficulty: 2

% Correct Responses: 52   Discrimination Index: 85

Correct Answer: A

14.2C   Ms Quasimodo in Problem 14.3 has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is her consumption of earplugs and m is money left over to spend on other stuff. If she has $10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from $50 to 75, then his net consumer's surplus

(a) falls by 937.50.

(b) falls by 2,937.50.

(c) falls by 625.

(d) increases by 468.75.

(e) increases by 1,875.

14.3C   Bernice in Problem 14.5 has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of $18 per week and was paying a price of $1 per pair of earrings, then if the price of earrings rose to $3, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) $9.

(b) $18.

(c) $37.

(d) $36.

(e) $35.

14.4C   If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of $ 19 and was paying a price of $1 for earrings when the price of earrings went up to $7, then the equivalent variation of the price change was

(a) $14.25.

(b) $57.

(c) $114.

(d) $7.13.

(e) $35.63.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

14.5C   In Problem 14.7, Lolita's utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.30, the price of hay is 1, and her income is 4, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 4.25.

(b) 3.70.

(c) 0.25.

(d) 6.25.

(e) 2.25.

Topic: Consumer's Surplus

Difficulty: 0

% Correct Responses: 60

Discrimination Index: 67

Correct Answer: A

14.6C   Gloria's utility function for BMWs and money is given by $11,000x + y$, where x is the number of BMWs she has and y is the amount of money she has. Her income is 16,000. Her reservation price for one BMW is:

(a) 11,000

(b) $11,000 - y$

(c) 5,000

(d) $11,000 - p$

(e) 27,000

Topic: Consumer's Surplus

% Correct Responses: 51

Correct Answer: A

Difficulty: 1

Discrimination Index: 60

14.1D   In Problem 14.1, Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 80, how much is Sir Plus's net consumer surplus?

(a) 200

(b) 20

(c) 400

(d) 100

(e) 6,800

Topic: Consumer's Surplus

% Correct Responses: 52

Correct Answer: A

Difficulty: 2

Discrimination Index: 85

14.2D   Ms Quasimodo in Problem 14.3 has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is her consumption of earplugs and m is money left over to spend on other stuff. If she has $10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from $50 to 65, then his net consumer's surplus

(a) falls by 637.50.

(b) falls by 2,637.50.

(c) falls by 525.

(d) increases by 318.75.

(e) increases by 1,275.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

14.3D   Bernice in Problem 14.5 has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of \$10 per week and was paying a price of \$3 per pair of earrings, then if the price of earrings rose to \$8, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) \$5.56.

(b) \$12.50.

(c) \$26.

(d) \$25.

(e) \$24.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

14.4D   If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of \$ 11 and was paying a price of \$7 for earrings when the price of earrings went up to \$10, then the equivalent variation of the price change was

(a) \$3.

(b) \$4.13.

(c) \$8.25.

(d) \$1.50.

(e) \$3.56.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

14.5D   In Problem 14.7, Lolita's utility function is $U(x, y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.60, the price of hay is 1, and her income is 5, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 5.08.

(b) 4.40.

(c) 0.08.

(d) 7.58.

(e) 2.58.

Topic: Consumer's Surplus   Difficulty: 0
% Correct Responses: 60   Discrimination Index: 67
Correct Answer: A

14.6D   Gloria's utility function for BMWs and money is given by $17,000x + y$, where x is the number of BMWs she has and y is the amount of money she has. Her income is 22,000. Her reservation price for one BMW is:

(a) 17,000

(b) $17,000 - y$

(c) 5,000

(d) $17,000 - p$

(e) 39,000

Multiple Choice   Consumer's Surplus

14.1E   In Problem 14.1, Sir Plus has a demand function for mead that is given by the equation $D(p) = 100 - p$. If the price of mead is 90, how much is Sir Plus's net consumer surplus?

(a) 50

(b) 10

(c) 100

(d) 25

(e) 8,550

14.2E   Ms Quasimodo in Problem 14.3 has the utility function $U(x, m) = 100x - x^2/2 + m$ where x is her consumption of earplugs and m is money left over to spend on other stuff. If she has $10,000 to spend on earplugs and other stuff, and if the price of earplugs rises from $50 to 60, then his net consumer's surplus

(a) falls by 450.

(b) falls by 2,450.

(c) falls by 400.

(d) increases by 225.

(e) increases by 900.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

14.3E   Bernice in Problem 14.5 has the utility function $u(x, y) = min\{x, y\}$ where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per week.) If she originally had an income of $16 per week and was paying a price of $7 per pair of earrings, then if the price of earrings rose to $12, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) $6.15.

(b) $10.

(c) $21.

(d) $20.

(e) $19.

Topic: Consumer's Surplus   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

14.4E   If Bernice (whose utility function is $min\{x, y\}$ where x is her consumption of earrings and y is money left for other stuff) had an income of $ 16 and was paying a price of $2 for earrings when the price of earrings went up to $3, then the equivalent variation of the price change was

(a) $4.

(b) $5.33.

(c) $10.67.

(d) $2.

(e) $4.67.

Topic: Consumer's Surplus

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

14.5E In Problem 14.7, Lolita's utility function is $U(x,y) = x - x^2/2 + y$ where x is her consumption of cow feed and y is her consumption of hay. If the price of cow feed is 0.60, the price of hay is 1, and her income is 3, and if Lolita chooses the combination of hay and cow feed that she likes best from among those combinations she can afford, her utility will be:

(a) 3.08.

(b) 2.40.

(c) 0.08.

(d) 4.58.

(e) 1.58.

Topic: Consumer's Surplus

Difficulty: 0

% Correct Responses: 60

Discrimination Index: 67

Correct Answer: A

14.6E Elise's utility function for BMWs and money is given by $20,000x + y$, where x is the number of BMWs she has and y is the amount of money she has. Her income is 34,000. Her reservation price for one BMW is:

(a) 20,000

(b) $20,000 - y$

(c) 14,000

(d) $20,000 - p$

(e) 54,000

Chapter 15

Multiple Choice   Market Demand

15.1A In Problem 15.1, suppose every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 50 Dodge owners. If the price of gasoline is 3, what is the total amount of gasoline demanded in Gas Pump?

(a) 1,600

(b) 400

(c) 1,200

(d) 800

(e) None of the other options are correct.

15.2A In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 9, then the price elasticity of demand is

(a) -7.20.

(b) -3.60.

(c) -5.40.

(d) -0.90.

(e) -1.80.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.3A In Problem 15.6, the only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 16)(x_2 + 10)$. Then if her income were 40, her reservation price for Good 1 would be:

(a) 5.88.

(b) 5.50.

(c) 2.94.

(d) 1.60.

(e) 0.53.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

15.4A In the same football conference as the university in Problem 15.9 is another university where the demand for football tickets at each game is $180,000 - 12,000p$. If the capacity of the stadium at that university is 100,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 7.50

(b) 6.67

(c) 15

(d) 3.75

(e) 22.50

Topic: Market Demand

Difficulty: 0

% Correct Responses: 90

Discrimination Index: 31

Correct Answer: E

15.5A In Problem 15.9, the demand for tickets is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 17, then the price elasticity of demand for tickets is

(a) −11.33.

(b) −8.50.

(c) −17.

(d) −2.83.

(e) −5.67.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.1B   In Problem 15.1, suppose every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 250 Dodge owners. If the price of gasoline is 4, what is the total amount of gasoline demanded in Gas Pump?

(a) 1,500

(b) 375

(c) 1,125

(d) 750

(e) None of the other options are correct.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.2B   In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 5, then the price elasticity of demand is

(a) -6.67.

(b) -3.33.

(c) -5.

(d) -0.83.

(e) -1.67.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.3B In Problem 15.6, the only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 6)(x_2 + 2)$. Then if her income were 12, her reservation price for Good 1 would be:

(a) 4.

(b) 1.50.

(c) 2.

(d) 3.

(e) 0.23.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

15.4B In the same football conference as the university in Problem 15.9 is another university where the demand for football tickets at each game is $160,000 - 10,000p$. If the capacity of the stadium at that university is 90,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 8

(b) 7

(c) 16

(d) 4

(e) 24

Topic: Market Demand

Difficulty: 0

% Correct Responses: 90

Discrimination Index: 31

Correct Answer: E

15.5B In Problem 15.9, the demand for tickets is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 9, then the price elasticity of demand for tickets is

(a) −1.64.

(b) −1.23.

(c) −2.45.

(d) −0.41.

(e) −0.82.

Multiple Choice   Market Demand

15.1C   In Problem 15.1, suppose every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 200 Dodge owners. If the price of gasoline is 3.50, what is the total amount of gasoline demanded in Gas Pump?

(a) 2,300

(b) 575

(c) 1,725

(d) 1,150

(e) None of the other options are correct.

15.2C   In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 13, then the price elasticity of demand is

(a) -7.43.

(b) -3.71.

(c) -5.57.

(d) -0.93.

(e) -1.86.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.3C In Problem 15.6, the only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 14)(x_2 + 18)$. Then if her income were 40, her reservation price for Good 1 would be:

(a) 7.73.

(b) 9.50.

(c) 3.87.

(d) 0.78.

(e) 1.19.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

15.4C In the same football conference as the university in Problem 15.9 is another university where the demand for football tickets at each game is $180,000 - 8,000p$. If the capacity of the stadium at that university is 100,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 11.25

(b) 10

(c) 22.50

(d) 5.63

(e) 33.75

Topic: Market Demand

Difficulty: 0

% Correct Responses: 90

Discrimination Index: 31

Correct Answer: E

15.5C In Problem 15.9, the demand for tickets is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 2, then the price elasticity of demand for tickets is

(a) -0.22.

(b) -0.17.

(c) -0.33.

(d) -0.06.

(e) -0.11.

15.1D   In Problem 15.1, suppose every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 200 Dodge owners. If the price of gasoline is 4.75, what is the total amount of gasoline demanded in Gas Pump?

(a) 300

(b) 75

(c) 225

(d) 150

(e) None of the other options are correct.

15.2D   In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 12, then the price elasticity of demand is

(a) -7.38.

(b) -3.69.

(c) -5.54.

(d) -0.92.

(e) -1.85.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

15.3D   In Problem 15.6, the only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 10)(x_2 + 12)$. Then if her income were 40, her reservation price for Good 1 would be:

(a) 9.45.

(b) 6.50.

(c) 4.73.

(d) 0.83.

(e) 1.10.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

15.4D   In the same football conference as the university in Problem 15.9 is another university where the demand for football tickets at each game is $160,000 - 12,000p$. If the capacity of the stadium at that university is 90,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 6.67

(b) 5.83

(c) 13.33

(d) 3.33

(e) 20

Topic: Market Demand   Difficulty: 0
% Correct Responses: 90   Discrimination Index: 31
Correct Answer: E

15.5D   In Problem 15.9, the demand for tickets is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 4, then the price elasticity of demand for tickets is

(a) -0.50.

(b) -0.38.

(c) -0.75.

(d) -0.13.

(e) -0.25.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

15.1E   In Problem 15.1, suppose every Buick owner's demand for gasoline is $20 - 5p$ for p less than or equal to 4 and 0 for $p > 4$. Every Dodge owner's demand is $15 - 3p$ for p less than or equal to 5 and 0 for $p > 5$. Suppose that Gas Pump, S.D. has 100 Buick owners and 100 Dodge owners. If the price of gasoline is 3.75, what is the total amount of gasoline demanded in Gas Pump?

(a) 1,000

(b) 250

(c) 750

(d) 500

(e) None of the other options are correct.

Topic: Market Demand   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

15.2E   In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 18, then the price elasticity of demand is

(a) -7.58.

(b) -3.79.

(c) -5.68.

(d) -0.95.

(e) -1.89.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

15.3E In Problem 15.6, the only quantities of Good 1 that Barbie can buy are 1 unit or zero units. For x_1 equal to zero or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 4)(x_2 + 18)$. Then if her income were 4, her reservation price for Good 1 would be:

(a) 8.80.

(b) 9.50.

(c) 4.40.

(d) 0.22.

(e) 4.40.

Topic: Market Demand

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

15.4E In the same football conference as the university in Problem 15.9 is another university where the demand for football tickets at each game is $140,000 - 8,000p$. If the capacity of the stadium at that university is 80,000 seats, what is the revenue maximizing price for this university to charge per ticket.

(a) 8.75

(b) 7.50

(c) 17.50

(d) 4.38

(e) 26.25

Topic: Market Demand

Difficulty: 0

% Correct Responses: 90

Discrimination Index: 31

Correct Answer: E

15.5E In Problem 15.9, the demand for tickets is given by $D(p) = 200,000 - 10,000p$, where p is the price of tickets. If the price of tickets is 19, then the price elasticity of demand for tickets is

(a) -38.

(b) -28.50.

(c) -57.

(d) -9.50.

(e) -19.

Chapter 16

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 87   Discrimination Index: 15
Correct Answer: D

16.1A   This problem will be easier if you have done Problem 16.3.The inverse demand function for mangoes is defined by the equation $p = 234 - 5q$, where q is the number of units sold. The inverse supply function is defined by $p = 9 + 4q$. A tax of 18 is imposed on suppliers for each unit of mangoes that they sell. When the tax is imposed, the quantity of mangoes sold falls to

(a) 25.

(b) 20.50.

(c) 21.

(d) 23.

(e) 24.

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

16.2A   In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 17 + 2p$ and the long run demand function was given by $q = 171 - 4p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 19 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 10

(b) 17

(c) 20

(d) 40

(e) 30

16.3A   Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 2 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 6,000 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 18.

(b) 27.

(c) 30.

(d) 90.

(e) None of the other options are correct.

16.4A   In Problem 16.6, the demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for LaMerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and LaMerdes. If the world supply of Schrecklichs is 100 and the world supply of Lamerdes is 140, then the equilibrium price of Schrecklichs is

(a) 18

(b) 25

(c) 32

(d) 14

(e) 36

Multiple Choice   Equilibrium

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 87   Discrimination Index: 15
Correct Answer: D

16.1B This problem will be easier if you have done Problem 16.3.The inverse demand function for blueberries is defined by the equation $p = 257 - 7q$, where q is the number of units sold. The inverse supply function is defined by $p = 5 + 5q$. A tax of 36 is imposed on suppliers for each unit of blueberries that they sell. When the tax is imposed, the quantity of blueberries sold falls to

(a) 21.

(b) 13.80.

(c) 16.

(d) 18.

(e) 19.50.

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

16.2B In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 11 + 3p$ and the long run demand function was given by $q = 177 - 2p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 26 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 6

(b) 9

(c) 12

(d) 24

(e) 18

Topic: Equilibrium

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

16.3B Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 2 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 2,666.67 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 8.

(b) 12.

(c) 13.33.

(d) 40.

(e) None of the other options are correct.

Topic: Equilibrium

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 62

Correct Answer: A

16.4B In Problem 16.6, the demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for LaMerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and LaMerdes. If the world supply of Schrecklichs is 150 and the world supply of Lamerdes is 140, then the equilibrium price of Schrecklichs is

(a) 3

(b) 12.50

(c) 22

(d) 19

(e) 6

Topic: Equilibrium

% Correct Responses: 87

Correct Answer: D

Difficulty: 0

Discrimination Index: 15

16.1C   This problem will be easier if you have done Problem 16.3. The inverse demand function for bananas is defined by the equation $p = 429 - 9q$, where q is the number of units sold. The inverse supply function is defined by $p = 9 + 5q$. A tax of 70 is imposed on suppliers for each unit of bananas that they sell. When the tax is imposed, the quantity of bananas sold falls to

(a) 30.

(b) 16.

(c) 23.

(d) 25.

(e) 27.50.

Topic: Equilibrium

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

16.2C   In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 6 + 2p$ and the long run demand function was given by $q = 94 - 2p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 16 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 6

(b) 9

(c) 12

(d) 24

(e) 18

16.3C   Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 2 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 3,333.33 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 10.

(b) 15.

(c) 16.67.

(d) 50.

(e) None of the other options are correct.

16.4C   In Problem 16.6, the demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for LaMerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and LaMerdes. If the world supply of Schrecklichs is 100 and the world supply of Lamerdes is 170, then the equilibrium price of Schrecklichs is

(a) 24

(b) 25

(c) 26

(d) 2

(e) 48

Multiple Choice   Equilibrium

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 87   Discrimination Index: 15
Correct Answer: D

16.1D   This problem will be easier if you have done Problem 16.3.The inverse demand function
for cherries is defined by the equation $p = 162 - 6q$, where q is the number of units sold. The inverse
supply function is defined by $p = 8 + 5q$. A tax of 44 is imposed on suppliers for each unit of cherries
that they sell. When the tax is imposed, the quantity of cherries sold falls to

(a) 14.

(b) 5.20.

(c) 8.

(d) 10.

(e) 12.

Topic: Equilibrium   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

16.2D   In a crowded city far away, the civic authorities decided that rents were too high. The
long run supply function of two-room rental apartments was given by $q = 11 + 5p$ and the long run
demand function was given by $q = 324 - 4p$ where p is the rental rate in crowns per week. The
authorities made it illegal to rent an apartment for more than 27 crowns per week. To avoid a
housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal
to demand. How much would the weekly subsidy per apartment have to be to eliminate excess
demand at the ceiling price?

(a) 7

(b) 11

(c) 14

(d) 28

(e) 21

Topic: Equilibrium   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

16.3D   Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 1 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 2,000 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 8.

(b) 12.

(c) 10.

(d) 20.

(e) None of the other options are correct.

Topic: Equilibrium   Difficulty: 0

% Correct Responses: 75   Discrimination Index: 62

Correct Answer: A

16.4D   In Problem 16.6, the demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for LaMerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and LaMerdes. If the world supply of Schrecklichs is 120 and the world supply of Lamerdes is 170, then the equilibrium price of Schrecklichs is

(a) 18

(b) 20

(c) 22

(d) 4

(e) 36

Multiple Choice   Equilibrium

16.1E   This problem will be easier if you have done Problem 16.3. The inverse demand function for cherries is defined by the equation $p = 436 - 9q$, where q is the number of units sold. The inverse supply function is defined by $p = 16 + 3q$. A tax of 60 is imposed on suppliers for each unit of cherries that they sell. When the tax is imposed, the quantity of cherries sold falls to

(a) 35.

(b) 15.

(c) 28.

(d) 30.

(e) 32.50.

16.2E   In a crowded city far away, the civic authorities decided that rents were too high. The long run supply function of two-room rental apartments was given by $q = 17 + 3p$ and the long run demand function was given by $q = 139 - 2p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 16 crowns per week. To avoid a housing shortage, the authorities agreed to pay landlords enough of a subsidy to make supply equal to demand. How much would the weekly subsidy per apartment have to be to eliminate excess demand at the ceiling price?

(a) 7

(b) 11

(c) 14

(d) 28

(e) 21

Topic: Equilibrium

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

16.3E Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 4 coconuts for every coconut that they consume. The king puts all of the coconuts that he collects in a large pile and burns them. The supply of coconuts is given by $S(p_s) = 100p_s$, where p_s is the price received by suppliers. The demand for coconuts by the king's subjects is given by $D(p_d) = 4,160 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 8.

(b) 12.

(c) 20.80.

(d) 104.

(e) None of the other options are correct.

Topic: Equilibrium

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 62

Correct Answer: A

16.4E In Problem 16.6, the demand function for Schrecklichs is $200 - 4P_S - 2P_L$ and the demand function for LaMerdes is $200 - 3P_L - P_S$, where P_S and P_L are respectively the price of Schrecklichs and LaMerdes. If the world supply of Schrecklichs is 150 and the world supply of Lamerdes is 130, then the equilibrium price of Schrecklichs is

(a) 1

(b) 12.50

(c) 24

(d) 23

(e) 2

Chapter 17

Topic: Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

17.1A

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Jesse, Shelia, and Elsie. First Fiddler's does not know the willingness to pay of any of these bidders but on the basis of its previous experience believes that each of them has a probability of 1/3 of valuing the house at $900,000, a probability of 1/3 of valuing it at $600,000, and a probability of 1/3 of valuing it at $200,000. First Fiddler's believes that these probabilities are independent beween buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest answer.)

(a) $600,000

(b) $750,000

(c) $566,666.67

(d) $400,000

(e) $500,000

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

17.2A

An antique cabinet is being sold by means of an English auction. There are four bidders, Hester, Arabella, Gloria, and Desiree. These bidders are unacquainted with each other and do not collude. Hester values the cabinet at $1,200, Arabella values it at 500, Linda values it at $1,400, and Eva values it at $700. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Gloria for about $1,400.

(b) Hester for about $1,200.

(c) either Gloria or Hester for about $1,200. Which of these two buyers gets it is randomly determined.

(d) Gloria for slightly more than $1,200.

(e) either Gloria or Hester for about 500. Which of these two buyers gets it is randomly determined.

17.3A   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $800. There are two bidders. The dealer believes that there are only three possible values that each bidder's willingness to pay might take, $6,700, $3,500, and $800. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the automobile is

(a) $5,100.

(b) $3,666.67.

(c) $3,500.

(d) $3,000.

(e) $6,700.

17.4A   A dealer decides to sell an oil painting by means of an English auction with a reservation price of slightly below $100,000. If she fails to get a bid as high as her reservation price, she will burn the painting. There are two bidders. The dealer believes that each bidder's willingness to pay will take one of the three following values: $110,000, $100,000, and $35,000. The dealer believes that each bidder has a probability of 1/3 of having each of these three values. The probability distribution of each buyer's value is independent of that of the other's. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $89,000.

(b) $100,000.

(c) $105,000.

(d) $80,000.

(e) $81,666.67.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

17.5A   Jerry's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two thirds of the cars that are auctioned are lemons and one third are good used cars. A good used car is worth $2,100 to any buyer. A lemon is worth $300 to any buyer. Most buyers can do no better than picking at random from among these used cars. The only exception is Al Crankcase. Recall that Al can sometimes detect lemons by tasting the oil on the car's dipstick. A good car never fails Al's test, but half of the lemons fail his test. Al attends every auction, licks every dipstick, and bids his expected value of every car given the results of his test. Al will bid

(a) $1,200 for cars that pass his test and $300 for cars that fail his test. Normal bidders will get only lemons.

(b) $1,050 for cars that pass his test and $700 for cars that fail his test. Normal bidders will get only lemons.

(c) $700 for cars that pass his test and $300 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) $900 for cars that pass his test and $400 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) $600 for cars that pass his test and $300 for cars that fail his test. Normal bidders will get good cars only 1/12 of the time.

Topic: Difficulty: 0

% Correct Responses: 0 Discrimination Index: 0

Correct Answer: C

17.1B

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Jesse, Shelia, and Elsie. First Fiddler's does not know the willingness to pay of any of these bidders but on the basis of its previous experience believes that each of them has a probability of 1/3 of valuing the house at $800,000, a probability of 1/3 of valuing it at $300,000, and a probability of 1/3 of valuing it at $100,000. First Fiddler's believes that these probabilities are independent beween buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest answer.)

(a) $300,000

(b) $550,000

(c) $400,000

(d) $200,000

(e) $366,666.67

Topic: Auctions Difficulty: 0

% Correct Responses: 0 Discrimination Index: 0

Correct Answer: D

17.2B

An antique cabinet is being sold by means of an English auction. There are four bidders, Hester, Betsy, Arabella, and Kitty. These bidders are unacquainted with each other and do not collude. Hester values the cabinet at $1,000, Betsy values it at 600, Linda values it at $1,300, and Eva values it at $500. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Arabella for about $1,300.

(b) Hester for about $1,000.

(c) either Arabella or Hester for about $1,000. Which of these two buyers gets it is randomly determined.

(d) Arabella for slightly more than $1,000.

(e) either Arabella or Hester for about 600. Which of these two buyers gets it is randomly determined.

17.3B   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $400. There are two bidders. The dealer believes that there are only three possible values that each bidder's willingness to pay might take, $7,500, $2,100, and $400. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the automobile is

(a) $4,800.

(b) $3,333.33.

(c) $2,100.

(d) $1,600.

(e) $7,500.

17.4B   A dealer decides to sell an oil painting by means of an English auction with a reservation price of slightly below $95,000. If she fails to get a bid as high as her reservation price, she will burn the painting. There are two bidders. The dealer believes that each bidder's willingness to pay will take one of the three following values: $110,000, $95,000, and $45,000. The dealer believes that each bidder has a probability of 1/3 of having each of these three values. The probability distribution of each buyer's value is independent of that of the other's. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $89,000.

(b) $95,000.

(c) $102,500.

(d) $80,000.

(e) $83,333.33.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

17.5B Jerry's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two thirds of the cars that are auctioned are lemons and one third are good used cars. A good used car is worth $1,200 to any buyer. A lemon is worth $180 to any buyer. Most buyers can do no better than picking at random from among these used cars. The only exception is Al Crankcase. Recall that Al can sometimes detect lemons by tasting the oil on the car's dipstick. A good car never fails Al's test, but half of the lemons fail his test. Al attends every auction, licks every dipstick, and bids his expected value of every car given the results of his test. Al will bid

(a) $690 for cars that pass his test and $180 for cars that fail his test. Normal bidders will get only lemons.

(b) $600 for cars that pass his test and $400 for cars that fail his test. Normal bidders will get only lemons.

(c) $400 for cars that pass his test and $180 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) $520 for cars that pass his test and $280 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) $360 for cars that pass his test and $180 for cars that fail his test. Normal bidders will get good cars only 1/12 of the time.

Multiple Choice Auctions

17.1C

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Jesse, Shelia, and Elsie. First Fiddler's does not know the willingness to pay of any of these bidders but on the basis of its previous experience believes that each of them has a probability of 1/3 of valuing the house at \$800,000, a probability of 1/3 of valuing it at \$300,000, and a probability of 1/3 of valuing it at \$100,000. First Fiddler's believes that these probabilities are independent beween buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest answer.)

(a) \$300,000

(b) \$550,000

(c) \$400,000

(d) \$200,000

(e) \$366,666.67

17.2C

An antique cabinet is being sold by means of an English auction. There are four bidders, Betsy, Lana, Judy, and Gloria. These bidders are unacquainted with each other and do not collude. Betsy values the cabinet at \$900, Lana values it at 800, Linda values it at \$1,300, and Eva values it at \$700. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Judy for about \$1,300.

(b) Betsy for about \$900.

(c) either Judy or Betsy for about \$900. Which of these two buyers gets it is randomly determined.

(d) Judy for slightly more than \$900.

(e) either Judy or Betsy for about 800. Which of these two buyers gets it is randomly determined.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

17.3C A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $800. There are two bidders. The dealer believes that there are only three possible values that each bidder's willingness to pay might take, $7,900, $3,300, and $800. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the automobile is

(a) $5,600.

(b) $4,000.

(c) $3,300.

(d) $2,800.

(e) $7,900.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

17.4C A dealer decides to sell an oil painting by means of an English auction with a reservation price of slightly below $65,000. If she fails to get a bid as high as her reservation price, she will burn the painting. There are two bidders. The dealer believes that each bidder's willingness to pay will take one of the three following values: $80,000, $65,000, and $25,000. The dealer believes that each bidder has a probability of 1/3 of having each of these three values. The probability distribution of each buyer's value is independent of that of the other's. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $59,000.

(b) $65,000.

(c) $72,500.

(d) $50,000.

(e) $56,666.67.

17.5C   Jerry's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two thirds of the cars that are auctioned are lemons and one third are good used cars. A good used car is worth \$1,200 to any buyer. A lemon is worth \$270 to any buyer. Most buyers can do no better than picking at random from among these used cars. The only exception is Al Crankcase. Recall that Al can sometimes detect lemons by tasting the oil on the car's dipstick. A good car never fails Al's test, but half of the lemons fail his test. Al attends every auction, licks every dipstick, and bids his expected value of every car given the results of his test. Al will bid

(a) \$735 for cars that pass his test and \$270 for cars that fail his test. Normal bidders will get only lemons.

(b) \$600 for cars that pass his test and \$400 for cars that fail his test. Normal bidders will get only lemons.

(c) \$400 for cars that pass his test and \$270 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) \$580 for cars that pass his test and \$370 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) \$540 for cars that pass his test and \$270 for cars that fail his test. Normal bidders will get good cars only 1/12 of the time.

Topic: Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

17.1D

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Jesse, Shelia, and Elsie. First Fiddler's does not know the willingness to pay of any of these bidders but on the basis of its previous experience believes that each of them has a probability of 1/3 of valuing the house at $500,000, a probability of 1/3 of valuing it at $300,000, and a probability of 1/3 of valuing it at $200,000. First Fiddler's believes that these probabilities are independent beween buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest answer.)

(a) $300,000

(b) $400,000

(c) $333,333.33

(d) $250,000

(e) $266,666.67

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

17.2D

An antique cabinet is being sold by means of an English auction. There are four bidders, Judy, Mary, Cindy, and Kitty. These bidders are unacquainted with each other and do not collude. Judy values the cabinet at $1,200, Mary values it at 500, Linda values it at $1,700, and Eva values it at $600. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Cindy for about $1,700.

(b) Judy for about $1,200.

(c) either Cindy or Judy for about $1,200. Which of these two buyers gets it is randomly determined.

(d) Cindy for slightly more than $1,200.

(e) either Cindy or Judy for about 500. Which of these two buyers gets it is randomly determined.

17.3D   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $400. There are two bidders. The dealer believes that there are only three possible values that each bidder's willingness to pay might take, $6,300, $3,300, and $400. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the automobile is

(a) $4,800.

(b) $3,333.33.

(c) $3,300.

(d) $2,800.

(e) $6,300.

17.4D   A dealer decides to sell an oil painting by means of an English auction with a reservation price of slightly below $85,000. If she fails to get a bid as high as her reservation price, she will burn the painting. There are two bidders. The dealer believes that each bidder's willingness to pay will take one of the three following values: $90,000, $85,000, and $30,000. The dealer believes that each bidder has a probability of 1/3 of having each of these three values. The probability distribution of each buyer's value is independent of that of the other's. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $69,000.

(b) $85,000.

(c) $87,500.

(d) $60,000.

(e) $68,333.33.

Topic: Auctions   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

17.5D Jerry's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two thirds of the cars that are auctioned are lemons and one third are good used cars. A good used car is worth $3,000 to any buyer. A lemon is worth $120 to any buyer. Most buyers can do no better than picking at random from among these used cars. The only exception is Al Crankcase. Recall that Al can sometimes detect lemons by tasting the oil on the car's dipstick. A good car never fails Al's test, but half of the lemons fail his test. Al attends every auction, licks every dipstick, and bids his expected value of every car given the results of his test. Al will bid

(a) $1,560 for cars that pass his test and $120 for cars that fail his test. Normal bidders will get only lemons.

(b) $1,500 for cars that pass his test and $1,000 for cars that fail his test. Normal bidders will get only lemons.

(c) $1,000 for cars that pass his test and $120 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) $1,080 for cars that pass his test and $220 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) $240 for cars that pass his test and $120 for cars that fail his test. Normal bidders will get good cars only 1/12 of the time.

Multiple Choice   # Auctions

17.1E

First Fiddler's Bank has foreclosed on a home mortgage and is selling the house at auction. There are three bidders for the house, Jesse, Shelia, and Elsie. First Fiddler's does not know the willingness to pay of any of these bidders but on the basis of its previous experience believes that each of them has a probability of 1/3 of valuing the house at \$800,000, a probability of 1/3 of valuing it at \$700,000, and a probability of 1/3 of valuing it at \$400,000. First Fiddler's believes that these probabilities are independent beween buyers. If First Fiddler's sells the house by means of a second-bidder, sealed-bid auction (Vickrey auction), what will be the bank's expected revenue from the sale? (Choose the closest answer.)

(a) \$700,000

(b) \$750,000

(c) \$633,333.33

(d) \$550,000

(e) \$500,000

17.2E

An antique cabinet is being sold by means of an English auction. There are four bidders, Cindy, Irene, Arabella, and Flora. These bidders are unacquainted with each other and do not collude. Cindy values the cabinet at \$1,200, Irene values it at 600, Linda values it at \$1,300, and Eva values it at \$500. If the bidders bid in their rational self-interest, the cabinet will be sold to

(a) Arabella for about \$1,300.

(b) Cindy for about \$1,200.

(c) either Arabella or Cindy for about \$1,200. Which of these two buyers gets it is randomly determined.

(d) Arabella for slightly more than \$1,200.

(e) either Arabella or Cindy for about 600. Which of these two buyers gets it is randomly determined.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

17.3E   A dealer decides to sell an antique automobile by means of an English auction with a reservation price of $800. There are two bidders. The dealer believes that there are only three possible values that each bidder's willingness to pay might take, $6,600, $3,600, and $800. Each bidder has a probability of 1/3 of having each of these willingnesses to pay, and the probabilities of the two bidders are independent of the other's valuation. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the automobile is

(a) $5,100.

(b) $3,666.67.

(c) $3,600.

(d) $3,100.

(e) $6,600.

Topic: Auctions

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

17.4E   A dealer decides to sell an oil painting by means of an English auction with a reservation price of slightly below $85,000. If she fails to get a bid as high as her reservation price, she will burn the painting. There are two bidders. The dealer believes that each bidder's willingness to pay will take one of the three following values: $100,000, $85,000, and $25,000. The dealer believes that each bidder has a probability of 1/3 of having each of these three values. The probability distribution of each buyer's value is independent of that of the other's. Assuming that the two bidders bid rationally and do not collude, the dealer's expected revenue from selling the painting is slightly less than

(a) $79,000.

(b) $85,000.

(c) $92,500.

(d) $70,000.

(e) $70,000.

17.5E Jerry's Auction House in Purloined Hubcap, Oregon, holds sealed-bid used-car auctions every Wednesday. Each car is sold to the highest bidder at the second-highest bidder's bid. On average, two thirds of the cars that are auctioned are lemons and one third are good used cars. A good used car is worth \$2,700 to any buyer. A lemon is worth \$150 to any buyer. Most buyers can do no better than picking at random from among these used cars. The only exception is Al Crankcase. Recall that Al can sometimes detect lemons by tasting the oil on the car's dipstick. A good car never fails Al's test, but half of the lemons fail his test. Al attends every auction, licks every dipstick, and bids his expected value of every car given the results of his test. Al will bid

(a) \$1,425 for cars that pass his test and \$150 for cars that fail his test. Normal bidders will get only lemons.

(b) \$1,350 for cars that pass his test and \$900 for cars that fail his test. Normal bidders will get only lemons.

(c) \$900 for cars that pass his test and \$150 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(d) \$1,000 for cars that pass his test and \$250 for cars that fail his test. Normal bidders will get good cars only 1/6 of the time.

(e) \$300 for cars that pass his test and \$150 for cars that fail his test. Normal bidders will get good cars only 1/12 of the time.

Chapter 18

Topic: Technology

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 46

Correct Answer: A

18.1A This problem will be easier if you have done Problem 18.1. A firm has the production function $f(x_1, x_2) = x_1^2 x_2^{0.40}$. The isoquant on which output is $30^{4/10}$ has the equation

(a) $x_2 = 30x_1^{-5}$.

(b) $x_2 = 30x_1^{2.50}$.

(c) $x_1/x_2 = 5$.

(d) $x_2 = 30x_1^{-0.40}$.

(e) $x_1 = 0.40x_2^{-0.60}$.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.2A A firm has the production function $f(x, y) = x^{0.50}y^{1.80}$. This firm has

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) None of the other options are correct.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.3A A firm uses 3 factors of production. Its production function is $f(x, y, z) = min\{x^4/y, y^3, (z^5 - x^5)/y^2\}$. If the amount of each input is multiplied by 5, its output will be multiplied by

(a) 625.

(b) 125.

(c) 25.

(d) 0.04.

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.4A   A firm has a production function $f(x,y) = 1.80(x^{0.80} + y^{0.80})^2$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

18.5A   In Problem 18.3, if the exponents in the production function were 0.30 for x_1 and 0.60 for x_2, this production function would exhibit (*constant*, increasing, decreasing) returns to scale and (*would*, would not) have diminishing technical rate of substitution.

(a) constant, would

(b) constant, would not

(c) decreasing, would not

(d) increasing, would

(e) decreasing, would

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.6A   In Problem 18.8, if $a = 2.70$, $b = 0.30$, and $c = 1$, the marginal products of x_1, x_2, and x_3 (in this order) are:

(a) increasing, decreasing, and constant

(b) decreasing, increasing, and decreasing

(c) all increasing

(d) all decreasing

(e) all increasing if $A > 1$

Topic: Technology

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 46

Correct Answer: A

18.1B   This problem will be easier if you have done Problem 18.1. A firm has the production function $f(x_1, x_2) = x_1^{0.50} x_2^{0.10}$. The isoquant on which output is $80^{1/10}$ has the equation

(a) $x_2 = 80 x_1^{-5}$.

(b) $x_2 = 80 x_1^{10}$.

(c) $x_1/x_2 = 5$.

(d) $x_2 = 80 x_1^{-0.10}$.

(e) $x_1 = 0.10 x_2^{-0.90}$.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.2B   A firm has the production function $f(x, y) = x^{0.60} y^{1.30}$. This firm has

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) None of the other options are correct.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.3B   A firm uses 3 factors of production. Its production function is $f(x, y, z) = min\{x^2/y, y^1, (z^3 - x^3)/y^2\}$. If the amount of each input is multiplied by 6, its output will be multiplied by

(a) 36.

(b) 6.

(c) 1.

(d) 0.86.

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

18.4B   A firm has a production function $f(x, y) = 0.30(x^{0.80} + y^{0.80})^4$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has

(*a*) increasing returns to scale.

(*b*) decreasing returns to scale.

(*c*) constant returns to scale.

(*d*) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(*e*) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

18.5B   In Problem 18.3, if the exponents in the production function were 0.40 for x_1 and 0.30 for x_2, this production function would exhibit (*constant*, increasing, decreasing) returns to scale and (*would*, would not) have diminishing technical rate of substitution.

(*a*) constant, would

(*b*) constant, would not

(*c*) decreasing, would not

(*d*) increasing, would

(*e*) decreasing, would

Topic: Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

18.6B   In Problem 18.8, if $a = 0.40$, $b = 1.40$, and $c = 0.90$, the marginal products of x_1, x_2, and x_3 (in this order) are:

(*a*) increasing, decreasing, and constant

(*b*) decreasing, increasing, and decreasing

(*c*) all increasing

(*d*) all decreasing

(*e*) all increasing if $A > 1$

Topic: Technology

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 46

Correct Answer: A

18.1C This problem will be easier if you have done Problem 18.1. A firm has the production function $f(x_1, x_2) = x_1^{0.30} x_2^{0.10}$. The isoquant on which output is $40^{1/10}$ has the equation

(a) $x_2 = 40 x_1^{-3}$.

(b) $x_2 = 40 x_1^{10}$.

(c) $x_1/x_2 = 3$.

(d) $x_2 = 40 x_1^{-0.10}$.

(e) $x_1 = 0.10 x_2^{-0.90}$.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.2C A firm has the production function $f(x, y) = x^{0.90} y^{1.70}$. This firm has

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) None of the other options are correct.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.3C A firm uses 3 factors of production. Its production function is $f(x, y, z) = min\{x^3/y, y^2, (z^4 - x^4)/y^2\}$. If the amount of each input is multiplied by 4, its output will be multiplied by

(a) 64.

(b) 16.

(c) 4.

(d) 0.24.

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.4C   A firm has a production function $f(x, y) = 1(x^{0.70} + y^{0.70})^3$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

18.5C   In Problem 18.3, if the exponents in the production function were 0.70 for x_1 and 0.50 for x_2, this production function would exhibit (*constant*, increasing, decreasing) returns to scale and (*would*, would not) have diminishing technical rate of substitution.

(a) constant, would

(b) constant, would not

(c) decreasing, would not

(d) increasing, would

(e) decreasing, would

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.6C   In Problem 18.8, if $a = 1.20$, $b = 0.50$, and $c = 1$, the marginal products of x_1, x_2, and x_3 (in this order) are:

(a) increasing, decreasing, and constant

(b) decreasing, increasing, and decreasing

(c) all increasing

(d) all decreasing

(e) all increasing if $A > 1$

Topic: Technology   Difficulty: 0
% Correct Responses: 75   Discrimination Index: 46
Correct Answer: A

18.1D   This problem will be easier if you have done Problem 18.1. A firm has the production function $f(x_1, x_2) = x_1^{2.40} x_2^{0.60}$. The isoquant on which output is $80^{6/10}$ has the equation

(a) $x_2 = 80x_1^{-4}$.

(b) $x_2 = 80x_1^{1.67}$.

(c) $x_1/x_2 = 4$.

(d) $x_2 = 80x_1^{-0.60}$.

(e) $x_1 = 0.60x_2^{-0.40}$.

Topic: Technology   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

18.2D   A firm has the production function $f(x, y) = x^{1.20}y^{1.20}$. This firm has

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) None of the other options are correct.

Topic: Technology   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

18.3D   A firm uses 3 factors of production. Its production function is $f(x, y, z) = min\{x^2/y, y^1, (z^3 - x^3)/y^2\}$. If the amount of each input is multiplied by 3, its output will be multiplied by

(a) 9.

(b) 3.

(c) 1.

(d) 0.75.

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.4D   A firm has a production function $f(x,y) = 0.70(x^{0.10} + y^{0.10})^4$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

18.5D   In Problem 18.3, if the exponents in the production function were 0.10 for x_1 and 0.40 for x_2, this production function would exhibit (*constant*, increasing, decreasing) returns to scale and (*would*, would not) have diminishing technical rate of substitution.

(a) constant, would

(b) constant, would not

(c) decreasing, would not

(d) increasing, would

(e) decreasing, would

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.6D   In Problem 18.8, if $a = 1.50$, $b = 0.30$, and $c = 1$, the marginal products of x_1, x_2, and x_3 (in this order) are:

(a) increasing, decreasing, and constant

(b) decreasing, increasing, and decreasing

(c) all increasing

(d) all decreasing

(e) all increasing if $A > 1$

Topic: Technology

Difficulty: 0

% Correct Responses: 75

Discrimination Index: 46

Correct Answer: A

18.1E This problem will be easier if you have done Problem 18.1. A firm has the production function $f(x_1, x_2) = x_1^{1.50} x_2^{0.50}$. The isoquant on which output is $50^{5/10}$ has the equation

(a) $x_2 = 50x_1^{-3}$.

(b) $x_2 = 50x_1^2$.

(c) $x_1/x_2 = 3$.

(d) $x_2 = 50x_1^{-0.50}$.

(e) $x_1 = 0.50x_2^{-0.50}$.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.2E A firm has the production function $f(x, y) = x^1 y^2$. This firm has

(a) decreasing returns to scale and dimininishing marginal products for factor x.

(b) increasing returns to scale and decreasing marginal product of factor x.

(c) decreasing returns to scale and increasing marginal product for factor x.

(d) constant returns to scale.

(e) None of the other options are correct.

Topic: Technology

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

18.3E A firm uses 3 factors of production. Its production function is $f(x, y, z) = min\{x^2/y, y^1, (z^3 - x^3)/y^2\}$. If the amount of each input is multiplied by 2, its output will be multiplied by

(a) 4.

(b) 2.

(c) 1.

(d) 0.67.

(e) The answer depends on the original choice of x, y, and z.

Topic: Technology   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.4E   A firm has a production function $f(x,y) = 0.70(x^{0.90} + y^{0.90})^3$ whenever $x > 0$ and $y > 0$. When the amounts of both inputs are positive, this firm has

(a) increasing returns to scale.

(b) decreasing returns to scale.

(c) constant returns to scale.

(d) increasing returns to scale if $x + y > 1$ and decreasing returns to scale otherwise.

(e) increasing returns to scale if output is less than 1 and decreasing returns to scale if output is greater than 1.

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

18.5E   In Problem 18.3, if the exponents in the production function were 0.20 for x_1 and 0.30 for x_2, this production function would exhibit (*constant*, increasing, decreasing) returns to scale and (*would*, would not) have diminishing technical rate of substitution.

(a) constant, would

(b) constant, would not

(c) decreasing, would not

(d) increasing, would

(e) decreasing, would

Topic: Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

18.6E   In Problem 18.8, if $a = 2.50$, $b = 0.60$, and $c = 1$, the marginal products of x_1, x_2, and x_3 (in this order) are:

(a) increasing, decreasing, and constant

(b) decreasing, increasing, and decreasing

(c) all increasing

(d) all decreasing

(e) all increasing if $A > 1$

Chapter 19

Multiple Choice   Profit Maximization

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

19.1A   In Problem 19.1, the production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 8 and the price of output is 6, how many units of labor will the firm hire?

(a) 54

(b) 27

(c) 13.50

(d) 81

(e) None of the other options are correct.

Topic: Profit Maximization   Difficulty: 1
% Correct Responses: 77   Discrimination Index: 46
Correct Answer: A

19.2A   In Problem 19.2, the production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 90 per unit and the cost of the input is 20 per unit, how much profits will the firm make if it maximizes profits?

(a) 1,620

(b) 808

(c) 3,244

(d) 1,605

(e) 813

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 72

Discrimination Index: 69

Correct Answer: C

19.3A In Problem 19.11, the production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 6 and the price of factor 2 is 3, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 2x_2$

(c) $x_1 = 0.50x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 3x_2$

Topic: Profit Maximization

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

19.4A In Problem 19.9, when Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$1 per bushel and the price of fertilizer is \$0.40 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 120

(b) 240

(c) 64

(d) 248

(e) 200

Topic: Profit Maximization

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

19.5A In Problem 19.12, if the price of the output good is 4, the price of factor 1 is 1, and the price of factor 2 is 3, what is the profit-maximizing amount of factor 1?

(a) 8

(b) 2

(c) 1

(d) 0

(e) there is not enough information to tell

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

19.1B   In Problem 19.1, the production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 8 and the price of output is 8, how many units of labor will the firm hire?

(a) 128

(b) 64

(c) 32

(d) 192

(e) None of the other options are correct.

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 77

Discrimination Index: 46

Correct Answer: A

19.2B   In Problem 19.2, the production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 100 per unit and the cost of the input is 30 per unit, how much profits will the firm make if it maximizes profits?

(a) 1,333.33

(b) 664.67

(c) 2,670.67

(d) 1,318.33

(e) 669.67

Topic: Profit Maximization

Difficulty: 1

% Correct Responses: 72

Discrimination Index: 69

Correct Answer: C

19.3B   In Problem 19.11, the production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 10 and the price of factor 2 is 5, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 2x_2$

(c) $x_1 = 0.50x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 5x_2$

CHAPTER 19 Profit Maximization

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.4B   In Problem 19.9, when Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$1 per bushel and the price of fertilizer is \$0.20 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 160

(b) 320

(c) 84

(d) 328

(e) 200

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.5A   In Problem 19.12, if the price of the output good is 4, the price of factor 1 is 1, and the price of factor 2 is 3, what is the profit-maximizing amount of factor 1?

(a) 8

(b) 2

(c) 1

(d) 0

(e) there is not enough information to tell

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

19.1C   In Problem 19.1, the production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 8 and the price of output is 8, how many units of labor will the firm hire?

(a) 128

(b) 64

(c) 32

(d) 192

(e) None of the other options are correct.

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 77   Discrimination Index: 46

Correct Answer: A

19.2C   In Problem 19.2, the production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 50 per unit and the cost of the input is 15 per unit, how much profits will the firm make if it maximizes profits?

(a) 666.67

(b) 331.33

(c) 1,337.33

(d) 651.67

(e) 336.33

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 72   Discrimination Index: 69

Correct Answer: C

19.3C   In Problem 19.11, the production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 10 and the price of factor 2 is 5, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 2x_2$

(c) $x_1 = 0.50x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 5x_2$

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.4C   In Problem 19.9, when Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$2 per bushel and the price of fertilizer is \$0.40 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 160

(b) 320

(c) 84

(d) 328

(e) 200

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.5A   In Problem 19.12, if the price of the output good is 4, the price of factor 1 is 1, and the price of factor 2 is 3, what is the profit-maximizing amount of factor 1?

(a) 8

(b) 2

(c) 1

(d) 0

(e) there is not enough information to tell

Multiple Choice   Profit Maximization

19.1D   In Problem 19.1, the production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 16 and the price of output is 12, how many units of labor will the firm hire?

(a) 54

(b) 27

(c) 13.50

(d) 81

(e) None of the other options are correct.

19.2D   In Problem 19.2, the production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 100 per unit and the cost of the input is 10 per unit, how much profits will the firm make if it maximizes profits?

(a) 4,000

(b) 1,998

(c) 8,004

(d) 3,985

(e) 2,003

19.3D   In Problem 19.11, the production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 10 and the price of factor 2 is 20, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 0.50x_2$

(c) $x_1 = 2x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 20x_2$

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.4D   In Problem 19.9, when Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$1 per bushel and the price of fertilizer is \$0.20 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 160

(b) 320

(c) 84

(d) 328

(e) 200

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.5A   In Problem 19.12, if the price of the output good is 4, the price of factor 1 is 1, and the price of factor 2 is 3, what is the profit-maximizing amount of factor 1?

(a) 8

(b) 2

(c) 1

(d) 0

(e) there is not enough information to tell

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

19.1E   In Problem 19.1, the production function is given by $F(L) = 6L^{2/3}$. Suppose that the cost per unit of labor is 12 and the price of output is 12, how many units of labor will the firm hire?

(a) 128

(b) 64

(c) 32

(d) 192

(e) None of the other options are correct.

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 77   Discrimination Index: 46

Correct Answer: A

19.2E   In Problem 19.2, the production function is given by $f(x) = 4x^{1/2}$. If the price of the commodity produced is 60 per unit and the cost of the input is 30 per unit, how much profits will the firm make if it maximizes profits?

(a) 480

(b) 238

(c) 964

(d) 465

(e) 243

Topic: Profit Maximization   Difficulty: 1

% Correct Responses: 72   Discrimination Index: 69

Correct Answer: C

19.3E   In Problem 19.11, the production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is 10 and the price of factor 2 is 5, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?

(a) $x_1 = x_2$

(b) $x_1 = 2x_2$

(c) $x_1 = 0.50x_2$

(d) We can't tell without knowing the price of output.

(e) $x_1 = 5x_2$

Topic: Profit Maximization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.4E   In Problem 19.9, when Farmer Hoglund applies N pounds of fertilizer per acre, the marginal product of fertilizer is $1 - (N/200)$ bushels of corn. If the price of corn is \$2 per bushel and the price of fertilizer is \$0.60 per pound, then how many pounds of fertilizer per acre should Farmer Hoglund use in order to maximize his profits?

(a) 140

(b) 280

(c) 74

(d) 288

(e) 200

Topic: Profit Maximization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

19.5A   In Problem 19.12, if the price of the output good is 4, the price of factor 1 is 1, and the price of factor 2 is 3, what is the profit-maximizing amount of factor 1?

(a) 8

(b) 2

(c) 1

(d) 0

(e) there is not enough information to tell

Chapter 20

Multiple Choice   Cost Minimization

20.1A   Suppose that Nadine in Problem 20.1 has a production function $5x_1 + x_2$. If the factor prices are 10 for factor 1 and 5 for factor 2, how much will it cost her to produce 20 units of output?

(a) 1,100

(b) 40

(c) 100

(d) 600

(e) 70

20.2A   In Problem 20.2, suppose that a new alloy is invented which uses copper and zinc in fixed proportions where one unit of output requires 3 units of copper and 3 units of zinc for each unit of alloy produced. If no other inputs are needed, if the price of copper is 5 and the price of zinc is 3, what is the average cost per unit when 2,000 units of the alloy are produced?

(a) 12.50

(b) 1,000

(c) 1

(d) 24

(e) 12,500

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.3A   In Problem 20.3, the production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$25 per unit and the cost of machines is \$36 per unit, then the total cost of producing 5 units of output will be

(a) 75.

(b) 152.50.

(c) 125.

(d) 150.

(e) None of the other options are correct.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

20.4A   Suppose that in the short run, the firm in Problem 20.3 which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 25 machines. If the cost of labor is 9 per unit and the cost of machines is 10 per unit, the short run total cost of producing 120 units of output is

(a) 1,140.

(b) 1,080.

(c) 1,200.

(d) 1,148.

(e) 574.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.5A

In Problem 20.12, Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$2 per unit and the cost of wood is \$3 per unit, then the cost of producing 8 deer is

(a) 64.

(b) 56.

(c) 192.

(d) 8.

(e) 24.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

20.6A   Two firms, Wickedly Efficient Widgets, and Wildly Nepotistic Widgets both produce widgets with the same production function $y = K^{1/2}L^{1/2}$ where K is the input of capital and L is the input of labor. Each company can hire labor at \$1 per unit and capital at \$1 per unit. WEW produces 10 widgets per week, choosing its input combination so as to to produce these 10 widgets in the cheapest way possible. WNW also produces 10 widgets per week, but its dotty ceo requires it to use twice as much labor as WEW uses. Given that it must use twice as many laborers as WEW does, and must produce the same output, how much more larger are WNW's total costs than WEW's?

(a) \$10 per week

(b) \$20 per week

(c) \$15 per week

(d) \$5 per week

(e) \$2 per week

Multiple Choice   Cost Minimization

Topic: Cost Minimization   Difficulty: 0

% Correct Responses: 42   Discrimination Index: 92

Correct Answer: B

20.1B   Suppose that Nadine in Problem 20.1 has a production function $3x_1 + x_2$. If the factor prices are 3 for factor 1 and 5 for factor 2, how much will it cost her to produce 70 units of output?

(a) 980

(b) 70

(c) 350

(d) 665

(e) 210

Topic: Cost Minimization   Difficulty: 1

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

20.2B   In Problem 20.2, suppose that a new alloy is invented which uses copper and zinc in fixed proportions where one unit of output requires 2 units of copper and 5 units of zinc for each unit of alloy produced. If no other inputs are needed, if the price of copper is 2 and the price of zinc is 2, what is the average cost per unit when 2,000 units of the alloy are produced?

(a) 7.20

(b) 400

(c) 0.40

(d) 14

(e) 7,200

Topic: Cost Minimization
% Correct Responses: 0
Correct Answer: A

Difficulty: 2
Discrimination Index: 0

20.3B   In Problem 20.3, the production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$49 per unit and the cost of machines is \$9 per unit, then the total cost of producing 6 units of output will be

(a) 63.

(b) 174.

(c) 54.

(d) 126.

(e) None of the other options are correct.

Topic: Cost Minimization
% Correct Responses: 0
Correct Answer: E

Difficulty: 2
Discrimination Index: 0

20.4B   Suppose that in the short run, the firm in Problem 20.3 which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 9 machines. If the cost of labor is 10 per unit and the cost of machines is 8 per unit, the short run total cost of producing 84 units of output is

(a) 756.

(b) 672.

(c) 840.

(d) 1,124.

(e) 562.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.5B

In Problem 20.12, Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$4 per unit and the cost of wood is \$4 per unit, then the cost of producing 7 deer is

(a) 98.

(b) 84.

(c) 196.

(d) 14.

(e) 28.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

20.6A   Two firms, Wickedly Efficient Widgets, and Wildly Nepotistic Widgets both produce widgets with the same production function $y = K^{1/2}L^{1/2}$ where K is the input of capital and L is the input of labor. Each company can hire labor at \$1 per unit and capital at \$1 per unit. WEW produces 10 widgets per week, choosing its input combination so as to to produce these 10 widgets in the cheapest way possible. WNW also produces 10 widgets per week, but its dotty ceo requires it to use twice as much labor as WEW uses. Given that it must use twice as many laborers as WEW does, and must produce the same output, how much more larger are WNW's total costs than WEW's?

(a) \$10 per week

(b) \$20 per week

(c) \$15 per week

(d) \$5 per week

(e) \$2 per week

Multiple Choice   Cost Minimization

20.1C   Suppose that Nadine in Problem 20.1 has a production function $5x_1 + x_2$. If the factor prices are 20 for factor 1 and 2 for factor 2, how much will it cost her to produce 80 units of output?

(a) 8,160

(b) 160

(c) 320

(d) 4,240

(e) 240

20.2C   In Problem 20.2, suppose that a new alloy is invented which uses copper and zinc in fixed proportions where one unit of output requires 5 units of copper and 4 units of zinc for each unit of alloy produced. If no other inputs are needed, if the price of copper is 4 and the price of zinc is 4, what is the average cost per unit when 3,000 units of the alloy are produced?

(a) 18.40

(b) 800

(c) 0.80

(d) 36

(e) 18,400

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.3C   In Problem 20.3, the production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$81 per unit and the cost of machines is \$49 per unit, then the total cost of producing 9 units of output will be

(a) 283.50.

(b) 585.

(c) 441.

(d) 567.

(e) None of the other options are correct.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

20.4C   Suppose that in the short run, the firm in Problem 20.3 which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 4 machines. If the cost of labor is 12 per unit and the cost of machines is 10 per unit, the short run total cost of producing 64 units of output is

(a) 704.

(b) 640.

(c) 768.

(d) 1,616.

(e) 808.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.5C

In Problem 20.12, Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$6 per unit and the cost of wood is \$1 per unit, then the cost of producing 9 deer is

(a) 81.

(b) 117.

(c) 243.

(d) 9.

(e) 27.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

20.6A   Two firms, Wickedly Efficient Widgets, and Wildly Nepotistic Widgets both produce widgets with the same production function $y = K^{1/2}L^{1/2}$ where K is the input of capital and L is the input of labor. Each company can hire labor at \$1 per unit and capital at \$1 per unit. WEW produces 10 widgets per week, choosing its input combination so as to to produce these 10 widgets in the cheapest way possible. WNW also produces 10 widgets per week, but its dotty ceo requires it to use twice as much labor as WEW uses. Given that it must use twice as many laborers as WEW does, and must produce the same output, how much more larger are WNW's total costs than WEW's?

(a) \$10 per week

(b) \$20 per week

(c) \$15 per week

(d) \$5 per week

(e) \$2 per week

Multiple Choice   # Cost Minimization

20.1D   Suppose that Nadine in Problem 20.1 has a production function $5x_1 + x_2$. If the factor prices are 5 for factor 1 and 3 for factor 2, how much will it cost her to produce 30 units of output?

(a) 840

(b) 30

(c) 90

(d) 465

(e) 60

20.2D   In Problem 20.2, suppose that a new alloy is invented which uses copper and zinc in fixed proportions where one unit of output requires 3 units of copper and 2 units of zinc for each unit of alloy produced. If no other inputs are needed, if the price of copper is 3 and the price of zinc is 5, what is the average cost per unit when 2,000 units of the alloy are produced?

(a) 10

(b) 1,000

(c) 1

(d) 19

(e) 10,000

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.3D   In Problem 20.3, the production function is $f(L, M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$100 per unit and the cost of machines is \$81 per unit, then the total cost of producing 4 units of output will be

(a) 180.

(b) 362.

(c) 324.

(d) 360.

(e) None of the other options are correct.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

20.4D   Suppose that in the short run, the firm in Problem 20.3 which has production function $F(L, M) = 4L^{1/2}M^{1/2}$ must use 16 machines. If the cost of labor is 10 per unit and the cost of machines is 6 per unit, the short run total cost of producing 176 units of output is

(a) 1,408.

(b) 1,056.

(c) 1,760.

(d) 2,612.

(e) 1,306.

Topic: Cost Minimization   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

20.5D

In Problem 20.12, Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$2 per unit and the cost of wood is \$4 per unit, then the cost of producing 5 deer is

(a) 25.

(b) 40.

(c) 100.

(d) 5.

(e) 20.

Topic: Cost Minimization   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

20.6A   Two firms, Wickedly Efficient Widgets, and Wildly Nepotistic Widgets both produce widgets with the same production function $y = K^{1/2}L^{1/2}$ where K is the input of capital and L is the input of labor. Each company can hire labor at \$1 per unit and capital at \$1 per unit. WEW produces 10 widgets per week, choosing its input combination so as to to produce these 10 widgets in the cheapest way possible. WNW also produces 10 widgets per week, but its dotty ceo requires it to use twice as much labor as WEW uses. Given that it must use twice as many laborers as WEW does, and must produce the same output, how much more larger are WNW's total costs than WEW's?

(a) \$10 per week

(b) \$20 per week

(c) \$15 per week

(d) \$5 per week

(e) \$2 per week

Multiple Choice   # Cost Minimization

20.1E   Suppose that Nadine in Problem 20.1 has a production function $4x_1 + x_2$. If the factor prices are 4 for factor 1 and 4 for factor 2, how much will it cost her to produce 40 units of output?

(a) 800

(b) 40

(c) 160

(d) 480

(e) 100

20.2E   In Problem 20.2, suppose that a new alloy is invented which uses copper and zinc in fixed proportions where one unit of output requires 4 units of copper and 5 units of zinc for each unit of alloy produced. If no other inputs are needed, if the price of copper is 4 and the price of zinc is 4, what is the average cost per unit when 5,000 units of the alloy are produced?

(a) 18.40

(b) 800

(c) 0.80

(d) 36

(e) 18,400

20.3E   In Problem 20.3, the production function is $f(L,M) = 4L^{1/2}M^{1/2}$, where L is the number of units of labor and M is the number of machines used. If the cost of labor is \$49 per unit and the cost of machines is \$100 per unit, then the total cost of producing 8 units of output will be

(a) 280.

(b) 596.

(c) 392.

(d) 560.

(e) None of the other options are correct.

20.4E   Suppose that in the short run, the firm in Problem 20.3 which has production function $F(L,M) = 4L^{1/2}M^{1/2}$ must use 16 machines. If the cost of labor is 4 per unit and the cost of machines is 8 per unit, the short run total cost of producing 80 units of output is

(a) 480.

(b) 320.

(c) 640.

(d) 456.

(e) 228.

Topic: Cost Minimization   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

20.5E

In Problem 20.12, Al's production function for deer is $f(x_1, x_2) = (2x_1 + x_2)^{1/2}$ where x_1 is the amount of plastic and x_2 is the amount of wood used. If the cost of plastic is \$6 per unit and the cost of wood is \$5 per unit, then the cost of producing 4 deer is

(a) 48.

(b) 68.

(c) 80.

(d) 12.

(e) 20.

Topic: Cost Minimization   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

20.6A   Two firms, Wickedly Efficient Widgets, and Wildly Nepotistic Widgets both produce widgets with the same production function $y = K^{1/2}L^{1/2}$ where K is the input of capital and L is the input of labor. Each company can hire labor at \$1 per unit and capital at \$1 per unit. WEW produces 10 widgets per week, choosing its input combination so as to to produce these 10 widgets in the cheapest way possible. WNW also produces 10 widgets per week, but its dotty ceo requires it to use twice as much labor as WEW uses. Given that it must use twice as many laborers as WEW does, and must produce the same output, how much more larger are WNW's total costs than WEW's?

(a) \$10 per week

(b) \$20 per week

(c) \$15 per week

(d) \$5 per week

(e) \$2 per week

Chapter 21

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.1A   In Problem 21.2, if Mr. Dent Carr's total costs were $2s^2 + 75s + 75$, then if he repairs 15 cars, his average variable costs will be

(a) 105.

(b) 110.

(c) 135.

(d) 210.

(e) 67.50.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.2A   In Problem 21.3, Rex Carr could pay $10 for a shovel that lasts one year and pay $5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs $200 a year to own and that smashes cars at a marginal cost of $1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost $650 per year to own and if with this smasher he could dispose of cars at a cost of $0.80 per car, it would be worthwhile for him to buy this high-quality smasher smasher if

(a) he plans to dispose of at least 2,250 cars per year.

(b) he plans to dispose of no more than 1,125 cars per year.

(c) he plans to dispose of at least 2,260 cars per year.

(d) he plans to dispose of no more than 2,250 cars per year.

(e) he plans to dispose of at least 1,125 cars per year.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

21.3A Mary Magnolia in Problem 21.4 has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 1,200 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is $ 6 per unit, how many bouquets per month should she sell in the short run?

(a) 1,200

(b) 600

(c) 3,600

(d) 5,400

(e) 3,960

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.4A Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 400 old jokes for which he paid 6 dollars each. If the wage rate for cartoonists is 3, then the total cost of producing 128 comics books is:

(a) 3,168.

(b) 1,584.

(c) 4,752.

(d) 3,296.

(e) 792.

21.5A   Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$1 each and cartoonists' labor costs \$9 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 9.

(b) 12.

(c) 3.

(d) 2/3.

(e) 6.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.1B   In Problem 21.2, if Mr. Dent Carr's total costs were $2s^2 + 50s + 75$, then if he repairs 25 cars, his average variable costs will be

(a) 100.

(b) 103.

(c) 150.

(d) 200.

(e) 75.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.2B   In Problem 21.3, Rex Carr could pay $10 for a shovel that lasts one year and pay $5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs $200 a year to own and that smashes cars at a marginal cost of $1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost $400 per year to own and if with this smasher he could dispose of cars at a cost of $0.80 per car, it would be worthwhile for him to buy this high-quality smasher smasher if

(a) he plans to dispose of at least 1,000 cars per year.

(b) he plans to dispose of no more than 500 cars per year.

(c) he plans to dispose of at least 1,010 cars per year.

(d) he plans to dispose of no more than 1,000 cars per year.

(e) he plans to dispose of at least 500 cars per year.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

21.3B   Mary Magnolia in Problem 21.4 has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 400 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is \$ 3 per unit, how many bouquets per month should she sell in the short run?

(a) 400

(b) 200

(c) 600

(d) 900

(e) 660

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.4B   Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 900 old jokes for which he paid 5 dollars each. If the wage rate for cartoonists is 6, then the total cost of producing 81 comics books is:

(a) 4,986.

(b) 2,493.

(c) 7,479.

(d) 5,067.

(e) 1,246.50.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

21.5B Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$4 each and cartoonists' labor costs \$36 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 9.

(b) 12.

(c) 3.

(d) 2/3.

(e) 6.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.1C In Problem 21.2, if Mr. Dent Carr's total costs were $2s^2 + 30s + 45$, then if he repairs 15 cars, his average variable costs will be

(a) 60.

(b) 63.

(c) 90.

(d) 120.

(e) 45.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.2C In Problem 21.3, Rex Carr could pay \$10 for a shovel that lasts one year and pay \$5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs \$200 a year to own and that smashes cars at a marginal cost of \$1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost \$450 per year to own and if with this smasher he could dispose of cars at a cost of \$0.50 per car, it would be worthwhile for him to buy this high-quality smasher smasher if

(a) he plans to dispose of at least 500 cars per year.

(b) he plans to dispose of no more than 250 cars per year.

(c) he plans to dispose of at least 510 cars per year.

(d) he plans to dispose of no more than 500 cars per year.

(e) he plans to dispose of at least 250 cars per year.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

21.3C Mary Magnolia in Problem 21.4 has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 1,800 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is $ 5 per unit, how many bouquets per month should she sell in the short run?

(a) 1,800

(b) 900

(c) 4,500

(d) 6,750

(e) 4,950

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.4C Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 100 old jokes for which he paid 5 dollars each. If the wage rate for cartoonists is 3, then the total cost of producing 8 comics books is:

(a) 548.

(b) 274.

(c) 822.

(d) 556.

(e) 137.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

21.5C   Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$1 each and cartoonists' labor costs \$6 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 6.

(b) 8.

(c) 2.

(d) 2/3.

(e) 4.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.1D   In Problem 21.2, if Mr. Dent Carr's total costs were $2s^2 + 45s + 60$, then if he repairs 15 cars, his average variable costs will be

(a) 75.

(b) 79.

(c) 105.

(d) 150.

(e) 52.50.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.2D   In Problem 21.3, Rex Carr could pay $10 for a shovel that lasts one year and pay $5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs $200 a year to own and that smashes cars at a marginal cost of $1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost $500 per year to own and if with this smasher he could dispose of cars at a cost of $0.80 per car, it would be worthwhile for him to buy this high-quality smasher smasher if

(a) he plans to dispose of at least 1,500 cars per year.

(b) he plans to dispose of no more than 750 cars per year.

(c) he plans to dispose of at least 1,510 cars per year.

(d) he plans to dispose of no more than 1,500 cars per year.

(e) he plans to dispose of at least 750 cars per year.

21.3D   Mary Magnolia in Problem 21.4 has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 1,200 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is \$ 6 per unit, how many bouquets per month should she sell in the short run?

(a) 1,200

(b) 600

(c) 3,600

(d) 5,400

(e) 3,960

21.4D   Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 1,600 old jokes for which he paid 2 dollars each. If the wage rate for cartoonists is 2, then the total cost of producing 108 comics books is:

(a) 3,362.

(b) 1,681.

(c) 5,043.

(d) 3,470.

(e) 840.50.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

21.5D   Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$2 each and cartoonists' labor costs \$6 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 3.

(b) 4.

(c) 1.

(d) 2/3.

(e) 2.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.1E   In Problem 21.2, if Mr. Dent Carr's total costs were $3s^2 + 45s + 45$, then if he repairs 15 cars, his average variable costs will be

(a) 90.

(b) 93.

(c) 135.

(d) 180.

(e) 67.50.

Topic: Cost Curves

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

21.2E   In Problem 21.3, Rex Carr could pay \$10 for a shovel that lasts one year and pay \$5 a car to his brother Scoop to bury the cars, or he could buy a low-quality car smasher that costs \$200 a year to own and that smashes cars at a marginal cost of \$1 per car. If it is also possible for Rex to buy a high-quality hydraulic car smasher that cost \$650 per year to own and if with this smasher he could dispose of cars at a cost of \$0.50 per car, it would be worthwhile for him to buy this high-quality smasher smasher if

(a) he plans to dispose of at least 900 cars per year.

(b) he plans to dispose of no more than 450 cars per year.

(c) he plans to dispose of at least 910 cars per year.

(d) he plans to dispose of no more than 900 cars per year.

(e) he plans to dispose of at least 450 cars per year.

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

21.3E   Mary Magnolia in Problem 21.4 has variable costs equal to y^2/F where y is the number of bouquets she sells per month and where F is the number of square feet of space in her shop. If Mary has signed a lease for a shop with 400 square feet and if she is not able to get out of the lease or to expand her store in the short run, and if the price of a bouquet is \$ 4 per unit, how many bouquets per month should she sell in the short run?

(a) 400

(b) 200

(c) 800

(d) 1,200

(e) 880

Topic: Cost Curves   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

21.4E   Touchie MacFeelie's production function is $.1J^{1/2}L^{3/4}$, where J is the number of old jokes used and L is the number of hours of cartoonists' labor. Touchie is stuck with 900 old jokes for which he paid 2 dollars each. If the wage rate for cartoonists is 4, then the total cost of producing 192 comics books is:

(a) 2,824.

(b) 1,412.

(c) 4,236.

(d) 3,016.

(e) 706.

21.5E   Recall that Touchie McFeelie's production function for comic books is $.1J^{1/2}L^{3/4}$. Suppose that Touchie can vary both jokes and cartoonists' labor. If old jokes cost \$3 each and cartoonists' labor costs \$18 per hour, then the cheapest way to produce comics books requires using jokes and labor in the ratio $J/L =$

(a) 6.

(b) 8.

(c) 2.

(d) 2/3.

(e) 4.

Chapter 22

Multiple Choice   Firm Supply

22.1A   Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 3s^2 + 75$. If the price he receives for repairing a car is 42, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 7

(b) 0

(c) 14

(d) 10.50

(e) 21

22.2A   In Problem 22.9, suppose that Irma's production function is $f(x_1, x_2) = (min\{x_1, 2x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 4$ and the price of factor 2 is $w_2 = 4$, then her supply function is given by the equation

(a) $S(p) = p/12$

(b) $S(p) = p(max\{w_1, 2 * w_2\})^2$

(c) $S(p) = p(min\{w_1, 2w_2\})^2$

(d) $S(p) = 6p$

(e) $S(p) = min\{4p, 8p\}$

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

22.3A A firm has a long run cost function, $C(q) = 4q^2 + 4$. In the long run, this firm will supply a positive amount of output, so long as the price is greater than

(a) 16.

(b) 24.

(c) 4.

(d) 8.

(e) 13.

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

22.1B   Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 3s^2 + 108$. If the price he receives for repairing a car is 18, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 3

(b) 0

(c) 6

(d) 4.50

(e) 9

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

22.2B   In Problem 22.9, suppose that Irma's production function is $f(x_1, x_2) = (min\{x_1, 2x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 2$ and the price of factor 2 is $w_2 = 10$, then her supply function is given by the equation

(a) $S(p) = p/14$

(b) $S(p) = p(max\{w_1, 2 * w_2\})^2$

(c) $S(p) = p(min\{w_1, 2w_2\})^2$

(d) $S(p) = 7p$

(e) $S(p) = min\{2p, 20p\}$

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

22.3B   A firm has a long run cost function, $C(q) = 3q^2 + 3$. In the long run, this firm will supply a positive amount of output, so long as the price is greater than

(a) 12.

(b) 20.

(c) 3.

(d) 6.

(e) 11.

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

22.1C   Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 2s^2 + 8$. If the price he receives for repairing a car is 16, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 4

(b) 0

(c) 8

(d) 6

(e) 12

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

22.2C   In Problem 22.9, suppose that Irma's production function is $f(x_1, x_2) = (min\{x_1, 2x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 3$ and the price of factor 2 is $w_2 = 6$, then her supply function is given by the equation

(a) $S(p) = p/12$

(b) $S(p) = p(max\{w_1, 2 * w_2\})^2$

(c) $S(p) = p(min\{w_1, 2w_2\})^2$

(d) $S(p) = 6p$

(e) $S(p) = min\{3p, 12p\}$

Topic: Firm Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

22.3C   A firm has a long run cost function, $C(q) = 7q^2 + 567$. In the long run, this firm will supply a positive amount of output, so long as the price is greater than

(a) 252.

(b) 260.

(c) 63.

(d) 126.

(e) 131.

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

22.1D Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 4s^2 + 100$. If the price he receives for repairing a car is 32, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 4

(b) 0

(c) 8

(d) 6

(e) 12

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

22.2D In Problem 22.9, suppose that Irma's production function is $f(x_1, x_2) = (min\{x_1, 3x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 2$ and the price of factor 2 is $w_2 = 15$, then her supply function is given by the equation

(a) $S(p) = p/14$

(b) $S(p) = p(max\{w_1, 3 * w_2\})^2$

(c) $S(p) = p(min\{w_1, 3w_2\})^2$

(d) $S(p) = 7p$

(e) $S(p) = min\{2p, 45p\}$

Topic: Firm Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

22.3D A firm has a long run cost function, $C(q) = 4q^2 + 64$. In the long run, this firm will supply a positive amount of output, so long as the price is greater than

(a) 64.

(b) 72.

(c) 16.

(d) 32.

(e) 37.

Topic: Firm Supply

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

22.1E Suppose that Dent Carr's long run total cost of repairing s cars per week is $c(s) = 4s^2 + 256$. If the price he receives for repairing a car is 24, then in the long run, how many cars will he fix per week if he maximizes profits?

(a) 3

(b) 0

(c) 6

(d) 4.50

(e) 9

Topic: Firm Supply

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

22.2E In Problem 22.9, suppose that Irma's production function is $f(x_1, x_2) = (min\{x_1, 5x_2\})^{1/2}$. If the price of factor 1 is $w_1 = 4$ and the price of factor 2 is $w_2 = 25$, then her supply function is given by the equation

(a) $S(p) = p/18$

(b) $S(p) = p(max\{w_1, 5 * w_2\})^2$

(c) $S(p) = p(min\{w_1, 5w_2\})^2$

(d) $S(p) = 9p$

(e) $S(p) = min\{4p, 125p\}$

Topic: Firm Supply

% Correct Responses: 0

Correct Answer: D

Difficulty: 0

Discrimination Index: 0

22.3E A firm has a long run cost function, $C(q) = 6q^2 + 6$. In the long run, this firm will supply a positive amount of output, so long as the price is greater than

(a) 24.

(b) 32.

(c) 6.

(d) 12.

(e) 17.

Chapter 23

Multiple Choice   Industry Supply

23.1A   In Problem 23.1, if the cost of plaster and labor were $ 14 per gnome and everything else is as in the problem (gnome molds cost $1000, interest rate is 10%), what is the lowest price of gnomes at which there would be a positive supply in the long run?

(a) 14

(b) 28

(c) 16.20

(d) 15.40

(e) 16.80

23.2A   Suppose that the garden gnome industry was in long run equilibrium given the circumstances described in Problem 23.1. Suppose, as in Problem 23.2, that it was discovered to everyone's surprise on January 1, 1993 after it was too late to change orders for gnome molds, that the cost of the plaster and labor needed to make a gnome had changed to 8. If the demand curve does not change, what will happen to the equilibrium price of gnomes?

(a) Rises by 1.

(b) Falls by 1 .

(c) Stays constant.

(d) Rises by 8.

(e) Falls by 4.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.3A   Suppose that the garden gnome industry was in long run equilibrium as described in 23.1. On January 1, 1993, the cost of plaster and labor remained at \$7 per gnome, gnome molds still cost \$1,000, and the interest rate remained at 10%, but the government introduced a tax of \$8 on every garden gnome sold. Then the equilibrium price of garden gnomes in 1993 would be

(a) 15.

(b) 9.20.

(c) 17.

(d) 8.

(e) 23.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.4A   Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about \$40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to \$ 800, then the equilibrium price of cockatoos in the U.S. will be

(a) 266.67.

(b) 120.

(c) 80.

(d) 64.

(e) 177.78.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.5A In Problem 23.13, in the absence of government interference, there is a constant marginal cost of $5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.30 and the fine if a shipper is caught is $30 per ounce, then the equilibrium price of marijuana per ounce is

(a) 20

(b) 14

(c) 35

(d) 3.50

(e) 6.50

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

23.6A In Problem 23.8, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 4 units of output, what is its total variable costs?

(a) $32

(b) $14

(c) $24

(d) $16

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.7A In Problem 23.9, if the demand curve for pollicles is negatively sloped and the government imposes a tax, t, on every unit of output sold by the industry, in the long run:

(a) fewer pollicles will be sold

(b) more pollicles will be sold

(c) each firm in the industry produces more

(d) each firm in the industry produces less

(e) the same number of pollicles will be sold

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

23.8A   In Problem 23.8, if market demand is equal to $D(p) = 20 - 3p$, the equilibrium price and number of firms operating in the market are (in that order):

(a) \$3.08, 7

(b) \$3.00, 6

(c) \$3.00, 8

(d) \$3.14, 3

(e) \$3.33, 5

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

23.9A   In Problem 23.4, suppose that each firm has the cost function $c(y) = y^2 + 9$ for $y > 0$ and $c(0) = 0$. With industry demand given by $D(p) = 51 - p$, the equilibrium price and equilibrium number of firms in the industry (in that order) will be:

(a) \$8, 11

(b) \$3, 18

(c) \$3, 48

(d) \$6, 15

(e) \$6, 45

Topic: Industry Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

23.1B   In Problem 23.1, if the cost of plaster and labor were $ 14 per gnome and everything else is as in the problem (gnome molds cost $1000, interest rate is 10%), what is the lowest price of gnomes at which there would be a positive supply in the long run?

(a) 14

(b) 28

(c) 16.20

(d) 15.40

(e) 16.80

Topic: Industry Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

23.2B   Suppose that the garden gnome industry was in long run equilibrium given the circumstances described in Problem 23.1. Suppose, as in Problem 23.2, that it was discovered to everyone's surprise on January 1, 1993 after it was too late to change orders for gnome molds, that the cost of the plaster and labor needed to make a gnome had changed to 6. If the demand curve does not change, what will happen to the equilibrium price of gnomes?

(a) Rises by 1.

(b) Falls by 1 .

(c) Stays constant.

(d) Rises by 6.

(e) Falls by 3.

23.3B   Suppose that the garden gnome industry was in long run equilibrium as described in 23.1. On January 1, 1993, the cost of plaster and labor remained at $7 per gnome, gnome molds still cost $1,000, and the interest rate remained at 10%, but the government introduced a tax of $8 on every garden gnome sold. Then the equilibrium price of garden gnomes in 1993 would be

(a) 15.

(b) 9.20.

(c) 17.

(d) 8.

(e) 23.

23.4B   Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about $40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to $ 1,200, then the equilibrium price of cockatoos in the U.S. will be

(a) 355.56.

(b) 160.

(c) 100.

(d) 76.

(e) 266.67.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.5B In Problem 23.13, in the absence of government interference, there is a constant marginal cost of $5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.40 and the fine if a shipper is caught is $45 per ounce, then the equilibrium price of marijuana per ounce is

(a) 38.33

(b) 23

(c) 50

(d) 3

(e) 7

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

23.6B In Problem 23.8, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 3 units of output, what is its total variable costs?

(a) $18

(b) $7

(c) $13.50

(d) $9

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.7A In Problem 23.9, if the demand curve for pollicles is negatively sloped and the government imposes a tax, t, on every unit of output sold by the industry, in the long run:

(a) fewer pollicles will be sold

(b) more pollicles will be sold

(c) each firm in the industry produces more

(d) each firm in the industry produces less

(e) the same number of pollicles will be sold

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.8A   In Problem 23.8, if market demand is equal to $D(p) = 20 - 3p$, the equilibrium price and number of firms operating in the market are (in that order):

(a) \$3.08, 7

(b) \$3.00, 6

(c) \$3.00, 8

(d) \$3.14, 3

(e) \$3.33, 5

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

23.9A   In Problem 23.4, suppose that each firm has the cost function $c(y) = y^2 + 9$ for $y > 0$ and $c(0) = 0$. With industry demand given by $D(p) = 51 - p$, the equilibrium price and equilibrium number of firms in the industry (in that order) will be:

(a) \$8, 11

(b) \$3, 18

(c) \$3, 48

(d) \$6, 15

(e) \$6, 45

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

23.1C   In Problem 23.1, if the cost of plaster and labor were $ 8 per gnome and everything else
is as in the problem (gnome molds cost $1000, interest rate is 10%), what is the lowest price of
gnomes at which there would be a positive supply in the long run?

(a) 8

(b) 16

(c) 10.20

(d) 8.80

(e) 9.60

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

23.2C   Suppose that the garden gnome industry was in long run equilibrium given the circum-
stances described in Problem 23.1. Suppose, as in Problem 23.2, that it was discovered to everyone's
surprise on January 1, 1993 after it was too late to change orders for gnome molds, that the cost
of the plaster and labor needed to make a gnome had changed to 6. If the demand curve does not
change, what will happen to the equilibrium price of gnomes?

(a) Rises by 1.

(b) Falls by 1 .

(c) Stays constant.

(d) Rises by 6.

(e) Falls by 3.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.3C   Suppose that the garden gnome industry was in long run equilibrium as described in 23.1. On January 1, 1993, the cost of plaster and labor remained at $7 per gnome, gnome molds still cost $1,000, and the interest rate remained at 10%, but the government introduced a tax of $4 on every garden gnome sold. Then the equilibrium price of garden gnomes in 1993 would be

(a) 11.

(b) 9.20.

(c) 13.

(d) 4.

(e) 15.

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.4C   Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about $40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to $ 1,100, then the equilibrium price of cockatoos in the U.S. will be

(a) 333.33.

(b) 150.

(c) 95.

(d) 73.

(e) 244.44.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.5C   In Problem 23.13, in the absence of government interference, there is a constant marginal cost of $5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.40 and the fine if a shipper is caught is $15 per ounce, then the equilibrium price of marijuana per ounce is

(a) 18.33

(b) 11

(c) 20

(d) 3

(e) 7

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

23.6C   In Problem 23.8, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 3 units of output, what is its total variable costs?

(a) $18

(b) $7

(c) $13.50

(d) $9

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.7A   In Problem 23.9, if the demand curve for pollicles is negatively sloped and the government imposes a tax, t, on every unit of output sold by the industry, in the long run:

(a) fewer pollicles will be sold

(b) more pollicles will be sold

(c) each firm in the industry produces more

(d) each firm in the industry produces less

(e) the same number of pollicles will be sold

23.8A   In Problem 23.8, if market demand is equal to $D(p) = 20 - 3p$, the equilibrium price and number of firms operating in the market are (in that order):

(a) \$3.08, 7

(b) \$3.00, 6

(c) \$3.00, 8

(d) \$3.14, 3

(e) \$3.33, 5

23.9A   In Problem 23.4, suppose that each firm has the cost function $c(y) = y^2 + 9$ for $y > 0$ and $c(0) = 0$. With industry demand given by $D(p) = 51 - p$, the equilibrium price and equilibrium number of firms in the industry (in that order) will be:

(a) \$8, 11

(b) \$3, 18

(c) \$3, 48

(d) \$6, 15

(e) \$6, 45

Multiple Choice   # Industry Supply

23.1D   In Problem 23.1, if the cost of plaster and labor were $ 7 per gnome and everything else is as in the problem (gnome molds cost $1000, interest rate is 10%), what is the lowest price of gnomes at which there would be a positive supply in the long run?

(a) 7

(b) 14

(c) 9.20

(d) 7.70

(e) 8.40

23.2D   Suppose that the garden gnome industry was in long run equilibrium given the circumstances described in Problem 23.1. Suppose, as in Problem 23.2, that it was discovered to everyone's surprise on January 1, 1993 after it was too late to change orders for gnome molds, that the cost of the plaster and labor needed to make a gnome had changed to 5. If the demand curve does not change, what will happen to the equilibrium price of gnomes?

(a) Rises by 2.

(b) Falls by 2 .

(c) Stays constant.

(d) Rises by 5.

(e) Falls by 2.50.

23.3D   Suppose that the garden gnome industry was in long run equilibrium as described in 23.1. On January 1, 1993, the cost of plaster and labor remained at \$7 per gnome, gnome molds still cost \$1,000, and the interest rate remained at 10%, but the government introduced a tax of \$10 on every garden gnome sold. Then the equilibrium price of garden gnomes in 1993 would be

(a) 17.

(b) 9.20.

(c) 19.

(d) 10.

(e) 27.

23.4D   Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about \$40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to \$ 900, then the equilibrium price of cockatoos in the U.S. will be

(a) 288.89.

(b) 130.

(c) 85.

(d) 67.

(e) 200.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.5D In Problem 23.13, in the absence of government interference, there is a constant marginal cost of $5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.40 and the fine if a shipper is caught is $30 per ounce, then the equilibrium price of marijuana per ounce is

(a) 28.33

(b) 17

(c) 35

(d) 3

(e) 7

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

23.6D In Problem 23.8, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 5 units of output, what is its total variable costs?

(a) $50

(b) $23

(c) $37.50

(d) $25

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

23.7A In Problem 23.9, if the demand curve for pollicles is negatively sloped and the government imposes a tax, t, on every unit of output sold by the industry, in the long run:

(a) fewer pollicles will be sold

(b) more pollicles will be sold

(c) each firm in the industry produces more

(d) each firm in the industry produces less

(e) the same number of pollicles will be sold

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.8A   In Problem 23.8, if market demand is equal to $D(p) = 20 - 3p$, the equilibrium price and number of firms operating in the market are (in that order):

(a) $3.08, 7

(b) $3.00, 6

(c) $3.00, 8

(d) $3.14, 3

(e) $3.33, 5

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

23.9A   In Problem 23.4, suppose that each firm has the cost function $c(y) = y^2 + 9$ for $y > 0$ and $c(0) = 0$. With industry demand given by $D(p) = 51 - p$, the equilibrium price and equilibrium number of firms in the industry (in that order) will be:

(a) $8, 11

(b) $3, 18

(c) $3, 48

(d) $6, 15

(e) $6, 45

Topic: Industry Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

23.1E   In Problem 23.1, if the cost of plaster and labor were $ 10 per gnome and everything else is as in the problem (gnome molds cost $1000, interest rate is 10%), what is the lowest price of gnomes at which there would be a positive supply in the long run?

(a) 10

(b) 20

(c) 12.20

(d) 11

(e) 12

Topic: Industry Supply   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

23.2E   Suppose that the garden gnome industry was in long run equilibrium given the circumstances described in Problem 23.1. Suppose, as in Problem 23.2, that it was discovered to everyone's surprise on January 1, 1993 after it was too late to change orders for gnome molds, that the cost of the plaster and labor needed to make a gnome had changed to 6. If the demand curve does not change, what will happen to the equilibrium price of gnomes?

(a) Rises by 1.

(b) Falls by 1 .

(c) Stays constant.

(d) Rises by 6.

(e) Falls by 3.

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

23.3E   Suppose that the garden gnome industry was in long run equilibrium as described in 23.1. On January 1, 1993, the cost of plaster and labor remained at \$7 per gnome, gnome molds still cost \$1,000, and the interest rate remained at 10%, but the government introduced a tax of \$7 on every garden gnome sold. Then the equilibrium price of garden gnomes in 1993 would be

(a) 14.

(b) 9.20.

(c) 16.

(d) 7.

(e) 21.

Topic: Industry Supply
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

23.4E   Suppose that the cost of capturing a cockatoo and transporting him to the U.S. is about \$40 per bird. Cockatoos are drugged and smuggled in suitcases to the U.S. Half of the smuggled cockatoos die in transit. Each smuggled cockatoo has a 10% probability of being discovered, in which case the smuggler is fined. If the fine imposed for each smuggled cockatoo is increased to \$ 1,300, then the equilibrium price of cockatoos in the U.S. will be

(a) 377.78.

(b) 170.

(c) 105.

(d) 79.

(e) 288.89.

Topic: Industry Supply
Difficulty: 0
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: A

23.5E In Problem 23.13, in the absence of government interference, there is a constant marginal cost of $5 per ounce for growing marijuana and delivering it to buyers. If the probability that any shipment of marijuana is seized is 0.10 and the fine if a shipper is caught is $25 per ounce, then the equilibrium price of marijuana per ounce is

(a) 8.33

(b) 7.50

(c) 30

(d) 4.50

(e) 5.50

Topic: Industry Supply
Difficulty: 0
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: D

23.6E In Problem 23.8, the supply curve of any firm is $S_i(p) = p/2$. If a firm produces 4 units of output, what is its total variable costs?

(a) $32

(b) $14

(c) $24

(d) $16

(e) There is not enough information given to determine total variable costs.

Topic: Industry Supply
Difficulty: 0
% Correct Responses: 0
Discrimination Index: 0
Correct Answer: A

23.7A In Problem 23.9, if the demand curve for pollicles is negatively sloped and the government imposes a tax, t, on every unit of output sold by the industry, in the long run:

(a) fewer pollicles will be sold

(b) more pollicles will be sold

(c) each firm in the industry produces more

(d) each firm in the industry produces less

(e) the same number of pollicles will be sold

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

23.8A   In Problem 23.8, if market demand is equal to $D(p) = 20 - 3p$, the equilibrium price and number of firms operating in the market are (in that order):

(a) $3.08, 7

(b) $3.00, 6

(c) $3.00, 8

(d) $3.14, 3

(e) $3.33, 5

Topic: Industry Supply   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

23.9A   In Problem 23.4, suppose that each firm has the cost function $c(y) = y^2 + 9$ for $y > 0$ and $c(0) = 0$. With industry demand given by $D(p) = 51 - p$, the equilibrium price and equilibrium number of firms in the industry (in that order) will be:

(a) $8, 11

(b) $3, 18

(c) $3, 48

(d) $6, 15

(e) $6, 45

Chapter 24

Multiple Choice   Monopoly

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.1A   In Problem 24.1, if the demand schedule for Bong's book is $Q = 2,000 - 100p$, the cost of having the book typeset is 9,000, and the marginal cost of printing an extra book is $4, then he would maximize his profits by

(a) having it typeset and selling 800 copies.

(b) having it typeset and selling 1,000 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 1,600 copies.

(e) having it typeset and selling 400 copies.

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

24.2A   In Problem 24.2, if the demand for pigeon pies is given by $p(y) = 90 - y/4$, then the level of output that will maximize Peter's profits is

(a) 184

(b) 36

(c) 360

(d) 540

(e) None of the other options are correct.

Topic: monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.3A   A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 70 - y$ and its total costs are $c(y) = 7y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 6 dollars per unit of output. After the tax, the monopoly will

(a) increase its price by 6.

(b) increase its price by 9.

(c) increase its price by 3.

(d) leave its price constant.

(e) None of the other options are correct.

Topic: monopoly

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

24.4A   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 12 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 41. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 6 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 46 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 12 units of Slops.

(e) None of the other options are correct.

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.5A The demand for Professor Bongmore's new book is given by the function $Q = 2,000 - 100p$. If the cost of having the book edited and typeset is 17,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by 12

(a) having it edited and typeset and selling 800 copies.

(b) having it edited and typeset and selling 1,000 copies.

(c) not having it edited and typeset and not selling any copies.

(d) having it edited and typeset and selling 1,600 copies.

(e) having it typeset and selling 400 copies.

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.6A In Problem 24.1, if demand for the book is $Q = 1,200 - 300p$, the marginal revenue function is given by:

(a) 300

(b) $1,200 - 600$

(c) $4 - Q/150$

(d) $4Q - Q^2/300$

(e) $-1/300$

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.7A In Problem 24.6, if there are no fixed costs and marginal cost is constant at 48, the price elasticity of demand at the profit-maximizing level of output is closest to:

(a) -0.35

(b) -5.69

(c) -2.85

(d) -11.38

(e) -0.18

Topic: monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.1B In Problem 24.1, if the demand schedule for Bong's book is $Q = 1,000 - 100p$, the cost of having the book typeset is 6,000, and the marginal cost of printing an extra book is $4, then he would maximize his profits by

(a) having it typeset and selling 300 copies.

(b) having it typeset and selling 500 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 600 copies.

(e) having it typeset and selling 150 copies.

Topic: monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: E

24.2B In Problem 24.2, if the demand for pigeon pies is given by $p(y) = 140 - y/5$, then the level of output that will maximize Peter's profits is

(a) 354

(b) 70

(c) 700

(d) 1,050

(e) None of the other options are correct.

Topic: monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.3B A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 70 - y$ and its total costs are $c(y) = 9y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 6 dollars per unit of output. After the tax, the monopoly will

(a) increase its price by 6.

(b) increase its price by 9.

(c) increase its price by 3.

(d) leave its price constant.

(e) None of the other options are correct.

Topic: monopoly

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

24.4B   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 16 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 69. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 8 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 74 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 16 units of Slops.

(e) None of the other options are correct.

Topic: monopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

24.5B   The demand for Professor Bongmore's new book is given by the function $Q = 4,000 - 100p$. If the cost of having the book edited and typeset is 25,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by 22

(a) having it edited and typeset and selling 1,800 copies.

(b) having it edited and typeset and selling 2,000 copies.

(c) not having it edited and typeset and not selling any copies.

(d) having it edited and typeset and selling 3,600 copies.

(e) having it typeset and selling 900 copies.

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.6B   In Problem 24.1, if demand for the book is $Q = 1,300 - 200p$, the marginal revenue function is given by:

(a) 200

(b) $1,300 - 400$

(c) $6.50 - Q/100$

(d) $6.50Q - Q^2/200$

(e) $-1/200$

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.7B   In Problem 24.6, if there are no fixed costs and marginal cost is constant at 56, the price elasticity of demand at the profit-maximizing level of output is closest to:

(a) -0.28

(b) -7.09

(c) -3.55

(d) -14.18

(e) -0.14

Topic: monopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

24.1C   In Problem 24.1, if the demand schedule for Bong's book is $Q = 4,000 - 100p$, the cost of having the book typeset is 11,000, and the marginal cost of printing an extra book is \$4, then he would maximize his profits by

(a) having it typeset and selling 1,800 copies.

(b) having it typeset and selling 2,000 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 3,600 copies.

(e) having it typeset and selling 900 copies.

Topic: monopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: E

24.2C   In Problem 24.2, if the demand for pigeon pies is given by $p(y) = 110 - y/4$, then the level of output that will maximize Peter's profits is

(a) 220

(b) 44

(c) 440

(d) 660

(e) None of the other options are correct.

Topic: monopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

24.3C   A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 70 - y$ and its total costs are $c(y) = 6y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 8 dollars per unit of output. After the tax, the monopoly will

(a) increase its price by 8.

(b) increase its price by 12.

(c) increase its price by 4.

(d) leave its price constant.

(e) None of the other options are correct.

Topic: monopoly   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

24.4C   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 10 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 30. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 5 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 35 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 10 units of Slops.

(e) None of the other options are correct.

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.5C   The demand for Professor Bongmore's new book is given by the function $Q = 4,000 - 100p$. If the cost of having the book edited and typeset is 20,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by 22

(a) having it edited and typeset and selling 1,800 copies.

(b) having it edited and typeset and selling 2,000 copies.

(c) not having it edited and typeset and not selling any copies.

(d) having it edited and typeset and selling 3,600 copies.

(e) having it typeset and selling 900 copies.

Topic: monopoly Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: C

24.6C   In Problem 24.1, if demand for the book is $Q = 900 - 300p$, the marginal revenue function is given by:

(a) 300

(b) $900 - 600$

(c) $3 - Q/150$

(d) $3Q - Q^2/300$

(e) $-1/300$

Topic: monopoly Difficulty: 0
% Correct Responses: 0 Discrimination Index: 0
Correct Answer: C

24.7C   In Problem 24.6, if there are no fixed costs and marginal cost is constant at 16, the price elasticity of demand at the profit-maximizing level of output is closest to:

(a) -0.72

(b) -2.76

(c) -1.38

(d) -5.52

(e) -0.36

Topic: monopoly

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

24.1D   In Problem 24.1, if the demand schedule for Bong's book is $Q = 3,000 - 100p$, the cost of having the book typeset is 6,000, and the marginal cost of printing an extra book is $4, then he would maximize his profits by

(a) having it typeset and selling 1,300 copies.

(b) having it typeset and selling 1,500 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 2,600 copies.

(e) having it typeset and selling 650 copies.

Topic: monopoly

% Correct Responses: 0

Correct Answer: E

Difficulty: 0

Discrimination Index: 0

24.2D   In Problem 24.2, if the demand for pigeon pies is given by $p(y) = 110 - y/2$, then the level of output that will maximize Peter's profits is

(a) 114

(b) 22

(c) 220

(d) 330

(e) None of the other options are correct.

Topic: monopoly

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

24.3D   A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 60 - y$ and its total costs are $c(y) = 7y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 2 dollars per unit of output. After the tax, the monopoly will

(a) increase its price by 2.

(b) increase its price by 3.

(c) increase its price by 1.

(d) leave its price constant.

(e) None of the other options are correct.

Topic: monopoly
% Correct Responses: 0
Correct Answer: B

Difficulty: 3
Discrimination Index: 0

24.4D A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 18 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 86. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 9 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 91 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 18 units of Slops.

(e) None of the other options are correct.

Topic: monopoly
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

24.5D The demand for Professor Bongmore's new book is given by the function $Q = 2,000 - 100p$. If the cost of having the book edited and typeset is 8,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by 12

(a) having it edited and typeset and selling 800 copies.

(b) having it edited and typeset and selling 1,000 copies.

(c) not having it edited and typeset and not selling any copies.

(d) having it edited and typeset and selling 1,600 copies.

(e) having it typeset and selling 400 copies.

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.6D   In Problem 24.1, if demand for the book is $Q = 1,400 - 400p$, the marginal revenue function is given by:

(a) 400

(b) $1,400 - 800$

(c) $3.50 - Q/200$

(d) $3.50Q - Q^2/400$

(e) $-1/400$

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.7D   In Problem 24.6, if there are no fixed costs and marginal cost is constant at 20, the price elasticity of demand at the profit-maximizing level of output is closest to:

(a) -0.67

(b) -3

(c) -1.50

(d) -6

(e) -0.33

Topic: monopoly

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

24.1E   In Problem 24.1, if the demand schedule for Bong's book is $Q = 3,000 - 100p$, the cost of having the book typeset is 8,000, and the marginal cost of printing an extra book is \$4, then he would maximize his profits by

(a) having it typeset and selling 1,300 copies.

(b) having it typeset and selling 1,500 copies.

(c) not having it typeset and not selling any copies.

(d) having it typeset and selling 2,600 copies.

(e) having it typeset and selling 650 copies.

Topic: monopoly

% Correct Responses: 0

Correct Answer: E

Difficulty: 0

Discrimination Index: 0

24.2E   In Problem 24.2, if the demand for pigeon pies is given by $p(y) = 70 - y/5$, then the level of output that will maximize Peter's profits is

(a) 179

(b) 35

(c) 350

(d) 525

(e) None of the other options are correct.

Topic: monopoly

% Correct Responses: 0

Correct Answer: C

Difficulty: 0

Discrimination Index: 0

24.3E   A profit-maximizing monopoly faces an inverse demand function described by the equation $p(y) = 60 - y$ and its total costs are $c(y) = 10y$, where prices and costs are measured in dollars. In the past it was not taxed, but now it must pay a tax of 6 dollars per unit of output. After the tax, the monopoly will

(a) increase its price by 6.

(b) increase its price by 9.

(c) increase its price by 3.

(d) leave its price constant.

(e) None of the other options are correct.

Topic: monopoly   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

24.4E   A firm has invented a new beverage called Slops. It doesn't taste very good, but it gives people a craving for Lawrence Welk's music and Professor Johnson's jokes. Some people are willing to pay money for this effect, so the demand for Slops is given by the equation $q = 10 - p$. Slops can be made at zero marginal cost from old-fashioned macroeconomics books dissolved in bathwater. But before any Slops can be produced, the firm must undertake a fixed cost of 30. Since the inventor has a patent on Slops, it can be a monopolist in this new industry.

(a) The firm will produce 5 units of Slops.

(b) A Pareto improvement could be achieved by having the government pay the firm a subsidy of 35 and insisting that the firm offer Slops at zero price.

(c) From the point of view of social efficiency, it is best that no Slops be produced.

(d) The firm will produce 10 units of Slops.

(e) None of the other options are correct.

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.5E   The demand for Professor Bongmore's new book is given by the function $Q = 6,000 - 100p$. If the cost of having the book edited and typeset is 11,000, if the marginal cost of printing an extra copy is 4, and if he has no other costs, then he would maximize his profits by 32

(a) having it edited and typeset and selling 2,800 copies.

(b) having it edited and typeset and selling 3,000 copies.

(c) not having it edited and typeset and not selling any copies.

(d) having it edited and typeset and selling 5,600 copies.

(e) having it typeset and selling 1,400 copies.

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.6E   In Problem 24.1, if demand for the book is $Q = 1,900 - 300p$, the marginal revenue function is given by:

(a) 300

(b) $1,900 - 600$

(c) $6.33 - Q/150$

(d) $6.33Q - Q^2/300$

(e) $-1/300$

Topic: monopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

24.7E   In Problem 24.6, if there are no fixed costs and marginal cost is constant at 20, the price elasticity of demand at the profit-maximizing level of output is closest to:

(a) -0.67

(b) -3

(c) -1.50

(d) -6

(e) -0.33

Chapter 25

Multiple Choice   Monopoly Behavior

25.1A   In Problem 25.1, if demand in the U.S. is given by $Q_1 = 20,000 - 1,000p_1$, where p_1 is the price in the U.S. and if the demand in England is given by $5,400 - 300p_2$ where p_2 is the price in England, then the difference between the price charged in England and the price charged in the U.S. will be

(a) 1.

(b) 2.

(c) 0.

(d) 11.

(e) 3.

25.2A   If a monopolist faces an inverse demand curve, $p(y) = 100 - 2y$ and has constant marginal costs of 32 and zero fixed costs, and if this monopolist is able to practice perfect price discrimination, its total profits will be

(a) 1,156.

(b) 17.

(c) 578.

(d) 1,734.

(e) 289.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.3A A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges 5 in one market and 12 in the other market. At these prices, the price elasticity in the first market is -2 and the price elasticity in the second market is -0.70. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.4A Suppose that 1,000 people are interested in attending ElvisLand. Once a person arrives at ElvisLand, his or her demand for rides is given by $x = Max\{5-p, 0\}$ where p is the price per ride. There is a constant marginal cost of \$2 for providing a ride at Elvisland. If ElvisLand charges a profit-maximizing two-part tariff, with one price for admission to ElvisLand and another price per ride for those who get in. How much should it charge per ride and how much for admission?

(a) \$2 per ride and \$5 for admission.

(b) \$2 per ride and \$4.50 for admission.

(c) \$0 per ride and \$3 for admission.

(d) \$0 per ride and \$6.50 for admission.

(e) \$5 per ride and \$5 for admission.

Topic: Monopoly Behavior   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

25.1B   In Problem 25.1, if demand in the U.S. is given by $Q_1 = 5,600 - 200p_1$, where p_1 is the price in the U.S. and if the demand in England is given by $5,000 - 500p_2$ where p_2 is the price in England, then the difference between the price charged in England and the price charged in the U.S. will be

(a) 9.

(b) 18.

(c) 0.

(d) 15.

(e) 27.

Topic: Monopoly Behavior   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

25.2B   If a monopolist faces an inverse demand curve, $p(y) = 100 - 2y$ and has constant marginal costs of 16 and zero fixed costs, and if this monopolist is able to practice perfect price discrimination, its total profits will be

(a) 1,764.

(b) 21.

(c) 882.

(d) 2,646.

(e) 441.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

25.3B   A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges 5 in one market and 10 in the other market. At these prices, the price elasticity in the first market is -2.40 and the price elasticity in the second market is -0.10. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

25.4B   Suppose that 1,000 people are interested in attending ElvisLand. Once a person arrives at ElvisLand, his or her demand for rides is given by $x = Max\{6-p, 0\}$ where p is the price per ride. There is a constant marginal cost of \$3 for providing a ride at Elvisland. If ElvisLand charges a profit-maximizing two-part tariff, with one price for admission to ElvisLand and another price per ride for those who get in. How much should it charge per ride and how much for admission?

(a) \$3 per ride and \$6 for admission.

(b) \$3 per ride and \$4.50 for admission.

(c) \$0 per ride and \$3 for admission.

(d) \$0 per ride and \$7.50 for admission.

(e) \$6 per ride and \$6 for admission.

Multiple Choice   Monopoly Behavior

25.1C   In Problem 25.1, if demand in the U.S. is given by $Q_1 = 9,600 - 600p_1$, where p_1 is the price in the U.S. and if the demand in England is given by $7,000 - 500p_2$ where p_2 is the price in England, then the difference between the price charged in England and the price charged in the U.S. will be

(a) 1.

(b) 2.

(c) 0.

(d) 9.

(e) 3.

25.2C   If a monopolist faces an inverse demand curve, $p(y) = 100 - 2y$ and has constant marginal costs of 36 and zero fixed costs, and if this monopolist is able to practice perfect price discrimination, its total profits will be

(a) 1,024.

(b) 16.

(c) 512.

(d) 1,536.

(e) 256.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.3C A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges 4 in one market and 9 in the other market. At these prices, the price elasticity in the first market is -2.50 and the price elasticity in the second market is -0.80. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.4C Suppose that 4,000 people are interested in attending ElvisLand. Once a person arrives at ElvisLand, his or her demand for rides is given by $x = Max\{3 - p, 0\}$ where p is the price per ride. There is a constant marginal cost of \$1 for providing a ride at Elvisland. If ElvisLand charges a profit-maximizing two-part tariff, with one price for admission to ElvisLand and another price per ride for those who get in. How much should it charge per ride and how much for admission?

(a) \$1 per ride and \$3 for admission.

(b) \$1 per ride and \$2 for admission.

(c) \$0 per ride and \$2 for admission.

(d) \$0 per ride and \$3 for admission.

(e) \$3 per ride and \$3 for admission.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

25.1D   In Problem 25.1, if demand in the U.S. is given by $Q_1 = 7,800 - 300p_1$, where p_1 is the price in the U.S. and if the demand in England is given by $8,000 - 500p_2$ where p_2 is the price in England, then the difference between the price charged in England and the price charged in the U.S. will be

(a) 5.

(b) 10.

(c) 0.

(d) 14.

(e) 15.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

25.2D   If a monopolist faces an inverse demand curve, $p(y) = 100 - 2y$ and has constant marginal costs of 12 and zero fixed costs, and if this monopolist is able to practice perfect price discrimination, its total profits will be

(a) 1,936.

(b) 22.

(c) 968.

(d) 2,904.

(e) 484.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

25.3D   A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges 6 in one market and 12 in the other market. At these prices, the price elasticity in the first market is -2.40 and the price elasticity in the second market is -0.70. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

25.4D   Suppose that 1,500 people are interested in attending ElvisLand. Once a person arrives at ElvisLand, his or her demand for rides is given by $x = Max\{4-p, 0\}$ where p is the price per ride. There is a constant marginal cost of \$3 for providing a ride at Elvisland. If ElvisLand charges a profit-maximizing two-part tariff, with one price for admission to ElvisLand and another price per ride for those who get in. How much should it charge per ride and how much for admission?

(a) \$3 per ride and \$4 for admission.

(b) \$3 per ride and \$0.50 for admission.

(c) \$0 per ride and \$1 for admission.

(d) \$0 per ride and \$3.50 for admission.

(e) \$4 per ride and \$4 for admission.

Multiple Choice   Monopoly Behavior

25.1E   In Problem 25.1, if demand in the U.S. is given by $Q_1 = 9,000 - 500p_1$, where p_1 is the price in the U.S. and if the demand in England is given by $3,000 - 300p_2$ where p_2 is the price in England, then the difference between the price charged in England and the price charged in the U.S. will be

(a) 4.

(b) 8.

(c) 0.

(d) 10.

(e) 12.

25.2E   If a monopolist faces an inverse demand curve, $p(y) = 100 - 2y$ and has constant marginal costs of 24 and zero fixed costs, and if this monopolist is able to practice perfect price discrimination, its total profits will be

(a) 1,444.

(b) 19.

(c) 722.

(d) 2,166.

(e) 361.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.3E A price-discriminating monopolist sells in two separate markets such that goods sold in one market are never resold in the other. It charges 2 in one market and 7 in the other market. At these prices, the price elasticity in the first market is -1.50 and the price elasticity in the second market is -0.80. Which of the following actions is sure to raise the monopolists profits?

(a) Lower p_2.

(b) Raise p_2.

(c) Raise p_1 and lower p_2.

(d) Raise both p_1 and p_2.

(e) Raise p_2 and lower p_1.

Topic: Monopoly Behavior

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

25.4E Suppose that 1,500 people are interested in attending ElvisLand. Once a person arrives at ElvisLand, his or her demand for rides is given by $x = Max\{4 - p, 0\}$ where p is the price per ride. There is a constant marginal cost of \$2 for providing a ride at Elvisland. If ElvisLand charges a profit-maximizing two-part tariff, with one price for admission to ElvisLand and another price per ride for those who get in. How much should it charge per ride and how much for admission?

(a) \$2 per ride and \$4 for admission.

(b) \$2 per ride and \$2 for admission.

(c) \$0 per ride and \$2 for admission.

(d) \$0 per ride and \$4 for admission.

(e) \$4 per ride and \$4 for admission.

Chapter 26

Multiple Choice   Factor Markets

Topic: Factor Markets   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

26.1A Suppose that in Problem 26.2, the demand curve for mineral water is given by $p = 60 - 12q$, where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor, who buys from a monopolist producer who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle, that will maximize the producer's total revenue. Given his marginal cost of c, the distributor chooses an output to maximize profits. The price paid by consumers under this arrangement is

(a) 30

(b) 45

(c) 5

(d) 2.50

(e) 15

Topic: Factor Markets   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

26.2A Suppose that the labor supply curve for a large university in a small town is given by $w = 40 + 0.07L$ where L is number of units of labor per week and w is the weekly wage paid per unit of labor. If the university is currently hiring 1000 units of labor per week, the marginal cost of an additional unit of labor

(a) equals the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 140.

(d) equals the wage rate plus 70.

(e) equals the wage rate plus 210

26.3A   Rabelaisian Restaurants has a monopoly in the town of Upper Glutton.Its production function is $Q = 30L$ where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay a wage of $30 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by $P = 27.67 - Q/1000$. The profit maximizing output for Rabelasian Restaurants is

(a) 12,000

(b) 24,000

(c) 3,000

(d) 2,500

(e) 1,500

26.4A   In Problem 26.1, suppose that the demand curve for antimacassars is $p = 66 - Q/900$. The firm's profit-maximizing output is closest to:

(a) 14,625

(b) 7,312.50

(c) 21,937.50

(d) 4,826.25

(e) 3,656.25

Multiple Choice   **Factor Markets**

26.1B   Suppose that in Problem 26.2, the demand curve for mineral water is given by $p = 30 - 20q$, where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor, who buys from a monopolist producer who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle, that will maximize the producer's total revenue. Given his marginal cost of c, the distributor chooses an output to maximize profits. The price paid by consumers under this arrangement is

(a) 15

(b) 22.50

(c) 1.50

(d) 0.75

(e) 7.50

26.2B   Suppose that the labor supply curve for a large university in a small town is given by $w = 100 + 0.06L$ where L is number of units of labor per week and w is the weekly wage paid per unit of labor. If the university is currently hiring 1000 units of labor per week, the marginal cost of an additional unit of labor

(a) equals the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 120.

(d) equals the wage rate plus 60.

(e) equals the wage rate plus 180

Topic: Factor Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.3B   Rabelaisian Restaurants has a monopoly in the town of Upper Glutton.Its production function is $Q = 40L$ where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay a wage of $80 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by $P = 27.50 - Q/1000$. The profit maximizing output for Rabelasian Restaurants is

(a) 12,000

(b) 24,000

(c) 3,000

(d) 2,000

(e) 1,500

Topic: Factor Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.4B   In Problem 26.1, suppose that the demand curve for antimacassars is $p = 52 - Q/1,200$. The firm's profit-maximizing output is closest to:

(a) 15,300

(b) 7,650

(c) 22,950

(d) 5,049

(e) 3,825

Multiple Choice   # Factor Markets

26.1C   Suppose that in Problem 26.2, the demand curve for mineral water is given by $p = 40 - 16q$, where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor, who buys from a monopolist producer who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle, that will maximize the producer's total revenue. Given his marginal cost of c, the distributor chooses an output to maximize profits. The price paid by consumers under this arrangement is

(a) 20

(b) 30

(c) 2.50

(d) 1.25

(e) 10

26.2C   Suppose that the labor supply curve for a large university in a small town is given by $w = 140 + 0.04L$ where L is number of units of labor per week and w is the weekly wage paid per unit of labor. If the university is currently hiring 1000 units of labor per week, the marginal cost of an additional unit of labor

(a) equals the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 80.

(d) equals the wage rate plus 40.

(e) equals the wage rate plus 120

26.3C   Rabelaisian Restaurants has a monopoly in the town of Upper Glutton.Its production function is $Q = 40L$ where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay a wage of $120 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by $P = 24.25 - Q/1000$. The profit maximizing output for Rabelasian Restaurants is

(a) 10,000

(b) 20,000

(c) 2,500

(d) 1,000

(e) 1,250

26.4C   In Problem 26.1, suppose that the demand curve for antimacassars is $p = 58 - Q/800$. The firm's profit-maximizing output is closest to:

(a) 11,400

(b) 5,700

(c) 17,100

(d) 3,762

(e) 2,850

Multiple Choice   Factor Markets

26.1D   Suppose that in Problem 26.2, the demand curve for mineral water is given by $p = 40 - 8q$, where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor, who buys from a monopolist producer who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle, that will maximize the producer's total revenue. Given his marginal cost of c, the distributor chooses an output to maximize profits. The price paid by consumers under this arrangement is

(a) 20

(b) 30

(c) 5

(d) 2.50

(e) 10

26.2D   Suppose that the labor supply curve for a large university in a small town is given by $w = 120 + 0.06L$ where L is number of units of labor per week and w is the weekly wage paid per unit of labor. If the university is currently hiring 1000 units of labor per week, the marginal cost of an additional unit of labor

(a) equals the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 120.

(d) equals the wage rate plus 60.

(e) equals the wage rate plus 180

Topic: Factor Markets

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

26.3D Rabelaisian Restaurants has a monopoly in the town of Upper Glutton.Its production function is $Q = 30L$ where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay a wage of $60 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by $P = 28.67 - Q/1000$. The profit maximizing output for Rabelasian Restaurants is

(a) 12,000

(b) 24,000

(c) 3,000

(d) 2,000

(e) 1,500

Topic: Factor Markets

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

26.4D In Problem 26.1, suppose that the demand curve for antimacassars is $p = 47 - Q/900$. The firm's profit-maximizing output is closest to:

(a) 10,350

(b) 5,175

(c) 15,525

(d) 3,415.50

(e) 2,587.50

Multiple Choice   Factor Markets

26.1E   Suppose that in Problem 26.2, the demand curve for mineral water is given by $p = 40 - 16q$, where p is the price per bottle paid by consumers and q is the number of bottles purchased by consumers. Mineral water is supplied to consumers by a monopolistic distributor, who buys from a monopolist producer who is able to produce mineral water at zero cost. The producer charges the distributor a price of c per bottle, that will maximize the producer's total revenue. Given his marginal cost of c, the distributor chooses an output to maximize profits. The price paid by consumers under this arrangement is

(a) 20

(b) 30

(c) 2.50

(d) 1.25

(e) 10

26.2E   Suppose that the labor supply curve for a large university in a small town is given by $w = 40 + 0.07L$ where L is number of units of labor per week and w is the weekly wage paid per unit of labor. If the university is currently hiring 1000 units of labor per week, the marginal cost of an additional unit of labor

(a) equals the wage rate.

(b) is twice the wage rate.

(c) equals the wage rate plus 140.

(d) equals the wage rate plus 70.

(e) equals the wage rate plus 210

Topic: Factor Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.3E   Rabelaisian Restaurants has a monopoly in the town of Upper Glutton.Its production function is $Q = 10L$ where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay a wage of $30 + .1L$ per unit of labor. The demand curve for meals at Rabelaisian Restaurants is given by $P = 35 - Q/1000$. The profit maximizing output for Rabelasian Restaurants is

(a) 8,000

(b) 16,000

(c) 2,000

(d) 500

(e) 1,000

Topic: Factor Markets   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

26.4E   In Problem 26.1, suppose that the demand curve for antimacassars is $p = 68 - Q/1,200$. The firm's profit-maximizing output is closest to:

(a) 20,100

(b) 10,050

(c) 30,150

(d) 6,633

(e) 5,025

Chapter 27

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.1A   Suppose that the duopolists Carl and Simon in Problem 27.1 face a demand function for pumpkins of $Q = 16,400 - 400P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of $1 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $8,000 - Q_s/2$.

(b) $16,400 - 400Q_s$.

(c) $16,400 - 800Q_s$.

(d) $4,000 - Q_s/2$.

(e) $12,000 - Q_s$.

Topic: oligopoly   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

27.2A

If in problem 27.4, the inverse demand for bean sprouts were given by $P(Y) = 940 - 5Y$ and the total cost of producing Y units for any firm were $TC(Y) = 40Y$, and if the industry consisted of two Cournot duopolists, then in equilibrium each firm's production would be

(a) 90 units.

(b) 45 units.

(c) 30 units.

(d) 60 units.

(e) 47 units.

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.3A   In Problem 27.5, suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$480 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of \$ 60 and Grubb has marginal costs of \$45. How much is Grinch's output in equilibrium?

(a) 675

(b) 1,350

(c) 337.50

(d) 1,012.50

(e) 2,025

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.4A   In Problem 27.6, suppose that two Cournot duopolists serve the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 170 - 2p$ (so $p = 85 - Q/2$). Total costs of running a flight on this route are $850 + 10q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of

(a) 400

(b) 425

(c) 170

(d) 800

(e) 1,750

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

27.5A   In Problem 27.4, suppose that the market demand curve for bean sprouts is given by $P = 1,280 - 4Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader, and a follower. Each firm has a constant marginal cost of $80 per unit of output. In equilibrium, total output by the two firms will be

(a) 150

(b) 75

(c) 225

(d) 300

(e) 37.50

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.6A   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 4,500 - 4q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if

(a) and only if each firm produces 250 units in its plant.

(b) they produce a total of 500 units, no matter which firm produces them.

(c) and only if they each produce a total of 562.50 units.

(d) the produce a total of 375 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.1B   Suppose that the duopolists Carl and Simon in Problem 27.1 face a demand function for pumpkins of $Q = 16,400 - 400P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of \$1 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $8,000 - Q_s/2$.

(b) $16,400 - 400Q_s$.

(c) $16,400 - 800Q_s$.

(d) $4,000 - Q_s/2$.

(e) $12,000 - Q_s$.

Topic: oligopoly   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

27.2B

If in problem 27.4, the inverse demand for bean sprouts were given by $P(Y) = 650 - 4Y$ and the total cost of producing Y units for any firm were $TC(Y) = 50Y$, and if the industry consisted of two Cournot duopolists, then in equilibrium each firm's production would be

(a) 75 units.

(b) 37.50 units.

(c) 25 units.

(d) 50 units.

(e) 40.63 units.

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.3B   In Problem 27.5, suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$360 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of \$ 60 and Grubb has marginal costs of \$45. How much is Grinch's output in equilibrium?

(a) 475

(b) 950

(c) 237.50

(d) 712.50

(e) 1,425

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.4B   In Problem 27.6, suppose that two Cournot duopolists serve the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 270 - 2p$ (so $p = 135 - Q/2$). Total costs of running a flight on this route are $1,650 + 30q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of

(a) 800

(b) 825

(c) 270

(d) 1,600

(e) 4,550

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

27.5B   In Problem 27.4, suppose that the market demand curve for bean sprouts is given by $P = 640 - 2Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader, and a follower. Each firm has a constant marginal cost of \$40 per unit of output. In equilibrium, total output by the two firms will be

(a) 150

(b) 75

(c) 225

(d) 300

(e) 37.50

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.6B   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 3,500 - 3q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if

(a) and only if each firm produces 250 units in its plant.

(b) they produce a total of 500 units, no matter which firm produces them.

(c) and only if they each produce a total of 583.33 units.

(d) the produce a total of 388.89 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: oligopoly
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

27.1C   Suppose that the duopolists Carl and Simon in Problem 27.1 face a demand function for pumpkins of $Q = 5,200 - 800P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of $0.50 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $2,400 - Q_s/2$.

(b) $5,200 - 800Q_s$.

(c) $5,200 - 1,600Q_s$.

(d) $1,200 - Q_s/2$.

(e) $3,600 - Q_s$.

Topic: oligopoly
% Correct Responses: 0
Correct Answer: D

Difficulty: 2
Discrimination Index: 0

27.2C

If in problem 27.4, the inverse demand for bean sprouts were given by $P(Y) = 570 - 3Y$ and the total cost of producing Y units for any firm were $TC(Y) = 30Y$, and if the industry consisted of two Cournot duopolists, then in equilibrium each firm's production would be

(a) 90 units.

(b) 45 units.

(c) 30 units.

(d) 60 units.

(e) 47.50 units.

Topic: oligopoly
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

27.3C   In Problem 27.5, suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$540 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of $\$15$ and Grubb has marginal costs of $\$45$. How much is Grinch's output in equilibrium?

(a) 925

(b) 1,850

(c) 462.50

(d) 1,387.50

(e) 2,775

Topic: oligopoly
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

27.4C   In Problem 27.6, suppose that two Cournot duopolists serve the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 210 - 2p$ (so $p = 105 - Q/2$). Total costs of running a flight on this route are $850 + 30q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of

(a) 400

(b) 425

(c) 210

(d) 800

(e) 2,750

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

27.5C   In Problem 27.4, suppose that the market demand curve for bean sprouts is given by $P = 1,220 - 4Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader, and a follower. Each firm has a constant marginal cost of \$20 per unit of output. In equilibrium, total output by the two firms will be

(a) 150

(b) 75

(c) 225

(d) 300

(e) 37.50

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.6C   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 1,400 - 3q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if

(a) and only if each firm produces 100 units in its plant.

(b) they produce a total of 200 units, no matter which firm produces them.

(c) and only if they each produce a total of 233.33 units.

(d) the produce a total of 155.56 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: oligopoly

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

27.1D   Suppose that the duopolists Carl and Simon in Problem 27.1 face a demand function for pumpkins of $Q = 2,000 - 800P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of $0.50 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $800 - Q_s/2$.

(b) $2,000 - 800Q_s$.

(c) $2,000 - 1,600Q_s$.

(d) $400 - Q_s/2$.

(e) $1,200 - Q_s$.

Topic: oligopoly

% Correct Responses: 0

Correct Answer: D

Difficulty: 2

Discrimination Index: 0

27.2D

If in problem 27.4, the inverse demand for bean sprouts were given by $P(Y) = 830 - 3Y$ and the total cost of producing Y units for any firm were $TC(Y) = 20Y$, and if the industry consisted of two Cournot duopolists, then in equilibrium each firm's production would be

(a) 135 units.

(b) 67.50 units.

(c) 45 units.

(d) 90 units.

(e) 69.17 units.

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.3D   In Problem 27.5, suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$420 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of \$ 30 and Grubb has marginal costs of \$30. How much is Grinch's output in equilibrium?

(a) 650

(b) 1,300

(c) 325

(d) 975

(e) 1,950

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.4D   In Problem 27.6, suppose that two Cournot duopolists serve the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 200 - 2p$ (so $p = 100 - Q/2$). Total costs of running a flight on this route are $1,000 + 10q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of

(a) 800

(b) 500

(c) 200

(d) 1,600

(e) 2,400

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

27.5D In Problem 27.4, suppose that the market demand curve for bean sprouts is given by $P = 1,020 - 2Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader, and a follower. Each firm has a constant marginal cost of $20 per unit of output. In equilibrium, total output by the two firms will be

(a) 250

(b) 125

(c) 375

(d) 500

(e) 62.50

Topic: oligopoly

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

27.6D There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 4,500 - 4q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if

(a) and only if each firm produces 250 units in its plant.

(b) they produce a total of 500 units, no matter which firm produces them.

(c) and only if they each produce a total of 562.50 units.

(d) the produce a total of 375 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.1E   Suppose that the duopolists Carl and Simon in Problem 27.1 face a demand function for pumpkins of $Q = 4,400 - 800P$ where Q is the total number of pumpkins that reach the market and P is the price of pumpkins. Suppose further that each farmer has a constant marginal cost of \$1.50 for each pumpkin produced. If Carl believes that Simon is going to produce Q_s pumpkins this year, then the reaction function tells us how many pumpkins Carl should produce in order to maximize his profits. Carl's reaction function is $R_C(Q_s) =$

(a) $1,600 - Q_s/2$.

(b) $4,400 - 800Q_s$.

(c) $4,400 - 1,600Q_s$.

(d) $800 - Q_s/2$.

(e) $2,400 - Q_s$.

Topic: oligopoly   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

27.2E

If in problem 27.4, the inverse demand for bean sprouts were given by $P(Y) = 1,550 - 5Y$ and the total cost of producing Y units for any firm were $TC(Y) = 50Y$, and if the industry consisted of two Cournot duopolists, then in equilibrium each firm's production would be

(a) 150 units.

(b) 75 units.

(c) 50 units.

(d) 100 units.

(e) 77.50 units.

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.3E   In Problem 27.5, suppose that Grinch and Grubb go into the wine business in a small country where wine is difficult to grow. The demand for wine is given by $p = \$420 - .2Q$ where p is the price and Q is the total quantity sold. The industry consists of just the two Cournot duopolists, Grinch and Grubb. Imports are prohibited. Grinch has constant marginal costs of $ 45 and Grubb has marginal costs of $60. How much is Grinch's output in equilibrium?

(a) 650

(b) 1,300

(c) 325

(d) 975

(e) 1,950

Topic: oligopoly   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

27.4E   In Problem 27.6, suppose that two Cournot duopolists serve the Peoria-Dubuque route, and the demand curve for tickets per day is $Q = 200 - 2p$ (so $p = 100 - Q/2$). Total costs of running a flight on this route are $400 + 40q$ where q is the number of passengers on the flight. Each flight has a capacity of 80 passengers. In Cournot equilibrium, each duopolist will run one flight per day and will make a daily profit of

(a) 400

(b) 200

(c) 200

(d) 800

(e) 2,400

Topic: oligopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

27.5E   In Problem 27.4, suppose that the market demand curve for bean sprouts is given by $P = 2,080 - 2Q$, where P is the price and Q is total industry output. Suppose that the industry has two firms, a Stackleberg leader, and a follower. Each firm has a constant marginal cost of \$80 per unit of output. In equilibrium, total output by the two firms will be

(a) 500

(b) 250

(c) 750

(d) 1,000

(e) 125

Topic: oligopoly   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

27.6E   There are two firms in the blastopheme industry. The demand curve for blastophemes is given by $p = 5,400 - 4q$. Each firm has one manufacturing plant and each firm i has a cost function $C(q_i) = q_i^2$ where q_i is the output of firm i. The two firms form a cartel and arrange to split total industry profits equally. Under this cartel arrangement, they will maximize joint profits if

(a) and only if each firm produces 300 units in its plant.

(b) they produce a total of 600 units, no matter which firm produces them.

(c) and only if they each produce a total of 675 units.

(d) the produce a total of 450 units, no matter which firm produces them.

(e) they shut down one of the two plants, having the other operate as a monopoly, and splitting the profits.

Chapter 28

Multiple Choice   Game Theory

28.1A   (See Problem 28.1) Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 3. If both pigs press the button then Big Pig gets 9 and Little Pig gets 1. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 7 and Little Pig gets 1. In Nash equilibrium,

(a) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 7.

(b) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 9.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

28.2A   (See Problem 28.6) Two players are engaged in a game of "chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 192 if the other player swerves and a payoff of -48 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and

(a) a mixed strategy equilibrium in which each player swerves with probability 0.20 and drives straight with probability 0.80.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.20 and the other swerves with probability 0.80.

(d) a mixed strategy in which each player swerves with probability 0.10 and drives straight with probability 0.90.

(e) no mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

28.3A   The old Michigan football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate either on the left side or the right side of Michigan's line. If the opponent concentrates on the wrong side, Michigan is sure to gain at least 5 yards. If the defense defended the left side and Michigan ran left, Michigan would be stopped for no gain. But if the opponent defended the right side when Michigan ran right, Michigan would still gain at least 5 yards with probability 0.70. It is the last play of the game and Michigan needs to gain 5 yards to win. Both sides choose Nash equilibrium strategies. In Nash equilibrium, Michigan would

(a) be sure to run to the right side.

(b) run to the right side with probability 0.77.

(c) run to the right side with probability 0.87.

(d) run to the two sides with equal probability.

(e) run to the right side with probability 0.70.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.4A   Suppose that in the Hawk-Dove game discussed in Problem 28.3, the payoff to each player is −4 if both play Hawk. If both play dove, the payoff to each player is 2 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 5 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays Hawk is

(a) 0.43.

(b) 0.21.

(c) 0.11.

(d) 0.71.

(e) 1.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

28.5A

(See Problem 28.11) If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $120 + 0.20X$. What is a long run equilibrium attendance for this club.

(a) 120

(b) 600

(c) 240

(d) 150

(e) 30

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.1B   (See Problem 28.1) Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 3. If both pigs press the button then Big Pig gets 8 and Little Pig gets 2. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 1 and Little Pig gets 3. In Nash equilibrium,

(a) Little Pig will get a payoff of 3 and Big Pig will get a payoff of 1.

(b) Little Pig will get a payoff of 2 and Big Pig will get a payoff of 8.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.2B   (See Problem 28.6) Two players are engaged in a game of "chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 56 if the other player swerves and a payoff of -24 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and

(a) a mixed strategy equilibrium in which each player swerves with probability 0.30 and drives straight with probability 0.70.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.30 and the other swerves with probability 0.70.

(d) a mixed strategy in which each player swerves with probability 0.15 and drives straight with probability 0.85.

(e) no mixed strategies.

28.3B   The old Michigan football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate either on the left side or the right side of Michigan's line. If the opponent concentrates on the wrong side, Michigan is sure to gain at least 5 yards. If the defense defended the left side and Michigan ran left, Michigan would be stopped for no gain. But if the opponent defended the right side when Michigan ran right, Michigan would still gain at least 5 yards with probability 0.30. It is the last play of the game and Michigan needs to gain 5 yards to win. Both sides choose Nash equilibrium strategies. In Nash equilibrium, Michigan would

(a) be sure to run to the right side.

(b) run to the right side with probability 0.59.

(c) run to the right side with probability 0.74.

(d) run to the two sides with equal probability.

(e) run to the right side with probability 0.70.

28.4B   Suppose that in the Hawk-Dove game discussed in Problem 28.3, the payoff to each player is −10 if both play Hawk. If both play dove, the payoff to each player is 5 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 8 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays Hawk is

(a) 0.23.

(b) 0.12.

(c) 0.06.

(d) 0.62.

(e) 1.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

28.5B

(See Problem 28.11) If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $56 + 0.30X$. What is a long run equilibrium attendance for this club.

(a) 56

(b) 186.67

(c) 112

(d) 80

(e) 24

Multiple Choice Game Theory

28.1C   (See Problem 28.1) Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 3. If both pigs press the button then Big Pig gets 8 and Little Pig gets 2. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 2 and Little Pig gets 1. In Nash equilibrium,

(a) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 2.

(b) Little Pig will get a payoff of 2 and Big Pig will get a payoff of 8.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

28.2C   (See Problem 28.6) Two players are engaged in a game of "chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 18 if the other player swerves and a payoff of −12 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and

(a) a mixed strategy equilibrium in which each player swerves with probability 0.40 and drives straight with probability 0.60.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.40 and the other swerves with probability 0.60.

(d) a mixed strategy in which each player swerves with probability 0.20 and drives straight with probability 0.80.

(e) no mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

28.3C   The old Michigan football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate either on the left side or the right side of Michigan's line. If the opponent concentrates on the wrong side, Michigan is sure to gain at least 5 yards. If the defense defended the left side and Michigan ran left, Michigan would be stopped for no gain. But if the opponent defended the right side when Michigan ran right, Michigan would still gain at least 5 yards with probability 0.40. It is the last play of the game and Michigan needs to gain 5 yards to win. Both sides choose Nash equilibrium strategies. In Nash equilibrium, Michigan would

(a) be sure to run to the right side.

(b) run to the right side with probability 0.63.

(c) run to the right side with probability 0.77.

(d) run to the two sides with equal probability.

(e) run to the right side with probability 0.60.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.4C   Suppose that in the Hawk-Dove game discussed in Problem 28.3, the payoff to each player is −10 if both play Hawk. If both play dove, the payoff to each player is 5 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 8 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays Hawk is

(a) 0.23.

(b) 0.12.

(c) 0.06.

(d) 0.62.

(e) 1.

Topic: Game Theory

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

28.5C

(See Problem 28.11) If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $77 + 0.30X$. What is a long run equilibrium attendance for this club.

(a) 77

(b) 256.67

(c) 154

(d) 110

(e) 33

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.1D (See Problem 28.1) Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 1. If both pigs press the button then Big Pig gets 8 and Little Pig gets 2. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 5 and Little Pig gets 1. In Nash equilibrium,

(a) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 5.

(b) Little Pig will get a payoff of 2 and Big Pig will get a payoff of 8.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.2D (See Problem 28.6) Two players are engaged in a game of "chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 3 if the other player swerves and a payoff of -12 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and

(a) a mixed strategy equilibrium in which each player swerves with probability 0.80 and drives straight with probability 0.20.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.80 and the other swerves with probability 0.20.

(d) a mixed strategy in which each player swerves with probability 0.40 and drives straight with probability 0.60.

(e) no mixed strategies.

28.3D   The old Michigan football coach had only two strategies. Run the ball to the left side of the line. Run the ball to the right side. The defense can concentrate either on the left side or the right side of Michigan's line. If the opponent concentrates on the wrong side, Michigan is sure to gain at least 5 yards. If the defense defended the left side and Michigan ran left, Michigan would be stopped for no gain. But if the opponent defended the right side when Michigan ran right, Michigan would still gain at least 5 yards with probability 0.50. It is the last play of the game and Michigan needs to gain 5 yards to win. Both sides choose Nash equilibrium strategies. In Nash equilibrium, Michigan would

(a) be sure to run to the right side.

(b) run to the right side with probability 0.67.

(c) run to the right side with probability 0.80.

(d) run to the two sides with equal probability.

(e) run to the right side with probability 0.50.

28.4D   Suppose that in the Hawk-Dove game discussed in Problem 28.3, the payoff to each player is -7 if both play Hawk. If both play dove, the payoff to each player is 4 and if one plays hawk and the other plays dove, the one that plays hawk gets a payoff of 7 and the one that plays dove gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when the fraction of the total population that plays Hawk is

(a) 0.30.

(b) 0.15.

(c) 0.08.

(d) 0.65.

(e) 1.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

28.5D

(See Problem 28.11) If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $112 + 0.20X$. What is a long run equilibrium attendance for this club.

(a) 112

(b) 560

(c) 224

(d) 140

(e) 28

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.1E   (See Problem 28.1) Big Pig and Little Pig have two possible strategies, Press the Button, and Wait at the trough. If both pigs choose Wait, both get 3. If both pigs press the button then Big Pig gets 7 and Little Pig gets 3. If Little Pig presses the button and Big Pig waits at the trough, then Big Pig gets 10 and Little Pig gets 0. Finally, if Big Pig presses the button and Little Pig waits, then Big Pig gets 5 and Little Pig gets 1. In Nash equilibrium,

(a) Little Pig will get a payoff of 1 and Big Pig will get a payoff of 5.

(b) Little Pig will get a payoff of 3 and Big Pig will get a payoff of 7.

(c) Both pigs will wait at the trough.

(d) Little pig will get a payoff of zero.

(e) The pigs must be using mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.2E   (See Problem 28.6) Two players are engaged in a game of "chicken". There are two possible strategies. Swerve and Drive Straight. A player who chooses to Swerve is called "Chicken" and gets a payoff of zero, regardless of what the other player does. A player who chooses to Drive Straight gets a payoff of 12 if the other player swerves and a payoff of -12 if the other player also chooses to Drive Straight. This game has two pure strategy equilibria and

(a) a mixed strategy equilibrium in which each player swerves with probability 0.50 and drives straight with probability 0.50.

(b) two mixed strategies in which players alternate between swerving and driving straight.

(c) a mixed strategy equilibrium in which one player swerves with probability 0.50 and the other swerves with probability 0.50.

(d) a mixed strategy in which each player swerves with probability 0.25 and drives straight with probability 0.75.

(e) no mixed strategies.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

28.3E   The old Michigan football coach had only two strategies. Run the ball to the left side of
the line. Run the ball to the right side. The defense can concentrate either on the left side or the
right side of Michigan's line. If the opponent concentrates on the wrong side, Michigan is sure to
gain at least 5 yards. If the defense defended the left side and Michigan ran left, Michigan would
be stopped for no gain. But if the opponent defended the right side when Michigan ran right,
Michigan would still gain at least 5 yards with probability 0.60. It is the last play of the game and
Michigan needs to gain 5 yards to win. Both sides choose Nash equilibrium strategies. In Nash
equilibrium, Michigan would

(a) be sure to run to the right side.

(b) run to the right side with probability 0.71.

(c) run to the right side with probability 0.83.

(d) run to the two sides with equal probability.

(e) run to the right side with probability 0.60.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

28.4E   Suppose that in the Hawk-Dove game discussed in Problem 28.3, the payoff to each player
is -7 if both play Hawk. If both play dove, the payoff to each player is 3 and if one plays hawk
and the other plays dove, the one that plays hawk gets a payoff of 8 and the one that plays dove
gets 0. In equilibrium, we would expect hawks and doves to do equally well. This happens when
the fraction of the total population that plays Hawk is

(a) 0.42.

(b) 0.21.

(c) 0.10.

(d) 0.71.

(e) 1.

Topic: Game Theory   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

28.5E

(See Problem 28.11) If the number of persons who attend the club meeting this week is X, then the number of people who will attend next week is $45 + 0.70X$. What is a long run equilibrium attendance for this club.

(a) 45

(b) 64.29

(c) 90

(d) 150

(e) 105

Chapter 29

Multiple Choice   Exchange

29.1A   An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 6 apples and 4 bananas. Doris has an initial endowment of 12 apples and 2 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation,

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 18 apples for every 6 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 12 apples for every 2 bananas that she consumes.

29.2A   In Problem 29.4, Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 4 units of quiche and 6 units of wine and Barbie's endowment were 8 units of quiche and 6 units of wine, then at any Pareto optimal allocation where both persons consume some of each good,

(a) Ken would consume 4 units of quiche for every 6 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 12 units of quiche for every 12 units of wine that he consumes.

(d) Barbie would consume 8 units of quiche for every 6 units of wine that she consumes.

(e) None of the other options are correct.

Topic: Exchange

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

29.3A In Problem 29.1, suppose that Morris has the utility function $U(b,w) = 4b + 12w$ and Philip has the utility function $U(b,w) = bw$. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/3 passing through the lower left corner of the box.

(d) a straight line with slope 1/3 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

29.4A In Problem 29.2, Astrid's utility function is $U(H_a, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 13 units of herring and if Birger's initial endowments are 12 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that

(a) $12/(p + 1) + 6.50 = 13$

(b) $12/13 = p$

(c) $13/12 = p$

(d) $12/p + 13/2p = 13$

(e) $Min\{13, 12\} = p$

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

29.5A   Suppose that in Problem 29.8, Mutt's utility function is $U(m, j) = max\{2m, j\}$ and Jeff's utility function is $U(m, j) = 3m + j$. Mutt is initially endowed with 6 units of milk and 2 units of juice and Jeff is initially endowed with 2 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

29.6A   In Problem 29.3, Professor Nightsoil's utility function is $U_N(B_N, P_N) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$. If Nightsoil's initial endowment is 6 bromides and 20 platitudes and if Interface's initial endowment is 2 bromides and 10 platitudes, then at any Pareto efficient allocation where both persons consume positive amounts of both goods, it must be that

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 6 platitudes.

(c) Interface consumes 4 bromides.

(d) Interface consumes 4 bromides.

(e) Interface consumes 2 platitudes.

Topic: Exchange

% Correct Responses: 0

Correct Answer: B

Difficulty: 2

Discrimination Index: 0

29.1B   An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 7 apples and 8 bananas. Doris has an initial endowment of 14 apples and 4 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation,

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 21 apples for every 12 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 14 apples for every 4 bananas that she consumes.

Topic: Exchange

% Correct Responses: 0

Correct Answer: C

Difficulty: 2

Discrimination Index: 0

29.2B   In Problem 29.4, Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 8 units of quiche and 10 units of wine and Barbie's endowment were 16 units of quiche and 10 units of wine, then at any Pareto optimal allocation where both persons consume some of each good,

(a) Ken would consume 8 units of quiche for every 10 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 24 units of quiche for every 20 units of wine that he consumes.

(d) Barbie would consume 16 units of quiche for every 10 units of wine that she consumes.

(e) None of the other options are correct.

29.3B   In Problem 29.1, suppose that Morris has the utility function $U(b, w) = 4b + 12w$ and Philip has the utility function $U(b, w) = bw$. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/3 passing through the lower left corner of the box.

(d) a straight line with slope 1/3 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

29.4B   In Problem 29.2, Astrid's utility function is $U(H_a, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 18 units of herring and if Birger's initial endowments are 16 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that

(a) $16/(p + 1) + 9 = 18$

(b) $16/18 = p$

(c) $18/16 = p$

(d) $16/p + 18/2p = 18$

(e) $Min\{18, 16\} = p$

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

29.5B Suppose that in Problem 29.8, Mutt's utility function is $U(m, j) = max\{3m, j\}$ and Jeff's utility function is $U(m, j) = 2m + j$. Mutt is initially endowed with 5 units of milk and 2 units of juice and Jeff is initially endowed with 3 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.6B In Problem 29.3, Professor Nightsoil's utility function is $U_N(B_N, P_N) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$. If Nightsoil's initial endowment is 5 bromides and 5 platitudes and if Interface's initial endowment is 7 bromides and 5 platitudes, then at any Pareto efficient allocation where both persons consume positive amounts of both goods, it must be that

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 2 platitudes.

(c) Interface consumes 6 bromides.

(d) Interface consumes 1 bromides.

(e) Interface consumes 1 platitudes.

Multiple Choice Exchange

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.1C An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 4 apples and 12 bananas. Doris has an initial endowment of 8 apples and 6 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation,

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 12 apples for every 18 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 8 apples for every 6 bananas that she consumes.

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

29.2C In Problem 29.4, Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 8 units of quiche and 5 units of wine and Barbie's endowment were 16 units of quiche and 5 units of wine, then at any Pareto optimal allocation where both persons consume some of each good,

(a) Ken would consume 8 units of quiche for every 5 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 24 units of quiche for every 10 units of wine that he consumes.

(d) Barbie would consume 16 units of quiche for every 5 units of wine that she consumes.

(e) None of the other options are correct.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

29.3C   In Problem 29.1, suppose that Morris has the utility function $U(b, w) = 5b + 20w$ and Philip has the utility function $U(b, w) = bw$. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/4 passing through the lower left corner of the box.

(d) a straight line with slope 1/4 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

29.4C   In Problem 29.2, Astrid's utility function is $U(H_a, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 7 units of herring and if Birger's initial endowments are 16 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that

(a) $16/(p + 1) + 3.50 = 7$

(b) $16/7 = p$

(c) $7/16 = p$

(d) $16/p + 7/2p = 7$

(e) $Min\{7, 16\} = p$

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

29.5C   Suppose that in Problem 29.8, Mutt's utility function is $U(m,j) = max\{3m,j\}$ and Jeff's utility function is $U(m,j) = 3m + j$. Mutt is initially endowed with 4 units of milk and 2 units of juice and Jeff is initially endowed with 4 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.6C   In Problem 29.3, Professor Nightsoil's utility function is $U_N(B_N, P_N) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$. If Nightsoil's initial endowment is 5 bromides and 10 platitudes and if Interface's initial endowment is 8 bromides and 25 platitudes, then at any Pareto efficient allocation where both persons consume positive amounts of both goods, it must be that

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 7 platitudes.

(c) Interface consumes 6.50 bromides.

(d) Interface consumes 2 bromides.

(e) Interface consumes 5 platitudes.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

29.1D   An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 8 apples and 10 bananas. Doris has an initial endowment of 16 apples and 5 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation,

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 24 apples for every 15 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 16 apples for every 5 bananas that she consumes.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

29.2D   In Problem 29.4, Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 5 units of quiche and 10 units of wine and Barbie's endowment were 10 units of quiche and 10 units of wine, then at any Pareto optimal allocation where both persons consume some of each good,

(a) Ken would consume 5 units of quiche for every 10 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 15 units of quiche for every 20 units of wine that he consumes.

(d) Barbie would consume 10 units of quiche for every 10 units of wine that she consumes.

(e) None of the other options are correct.

Topic: Exchange   Difficulty: 3
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

29.3D   In Problem 29.1, suppose that Morris has the utility function $U(b,w) = 1b + 2w$ and Philip has the utility function $U(b,w) = bw$. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/2 passing through the lower left corner of the box.

(d) a straight line with slope 1/2 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange   Difficulty: 2
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

29.4D   In Problem 29.2, Astrid's utility function is $U(H_a, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 20 units of herring and if Birger's initial endowments are 7 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that

(a) $7/(p+1) + 10 = 20$

(b) $7/20 = p$

(c) $20/7 = p$

(d) $7/p + 20/2p = 20$

(e) $Min\{20,7\} = p$

Topic: Exchange   Difficulty: 2

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

29.5D   Suppose that in Problem 29.8, Mutt's utility function is $U(m, j) = max\{4m, j\}$ and Jeff's utility function is $U(m, j) = 2m + j$. Mutt is initially endowed with 5 units of milk and 2 units of juice and Jeff is initially endowed with 3 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

29.6D   In Problem 29.3, Professor Nightsoil's utility function is $U_N(B_N, P_N) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$. If Nightsoil's initial endowment is 5 bromides and 25 platitudes and if Interface's initial endowment is 4 bromides and 20 platitudes, then at any Pareto efficient allocation where both persons consume positive amounts of both goods, it must be that

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 9 platitudes.

(c) Interface consumes 4.50 bromides.

(d) Interface consumes 5 bromides.

(e) Interface consumes 4 platitudes.

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.1E An economy has two people Charlie and Doris. There are two goods, apples and bananas. Charlie has an initial endowment of 5 apples and 4 bananas. Doris has an initial endowment of 10 apples and 2 bananas. Charlie's utility function is $U(A_C, B_C) = A_C B_C$ where A_C is his apple consumption and B_C is his banana consumption. Doris's utility function is $U(A_D, B_D) = A_D B_D$ where A_D and B_D are her apple and banana consumptions. At every Pareto optimal allocation,

(a) Charlie consumes the same number of apples as Doris.

(b) Charlie consumes 15 apples for every 6 bananas that he consumes.

(c) Doris consumes equal numbers of apples and bananas.

(d) Charlie consumes more bananas per apple than Doris does.

(e) Doris consumes apples and bananas in the ratio of 10 apples for every 2 bananas that she consumes.

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: C

29.2E In Problem 29.4, Ken's utility function is $U(Q_K, W_K) = Q_K W_K$ and Barbie's utility function is $U(Q_B, W_B) = Q_B W_B$. If Ken's initial endowment were 5 units of quiche and 6 units of wine and Barbie's endowment were 10 units of quiche and 6 units of wine, then at any Pareto optimal allocation where both persons consume some of each good,

(a) Ken would consume 5 units of quiche for every 6 units of wine.

(b) Barbie would consume twice as much quiche as Ken.

(c) Ken would consume 15 units of quiche for every 12 units of wine that he consumes.

(d) Barbie would consume 10 units of quiche for every 6 units of wine that she consumes.

(e) None of the other options are correct.

Topic: Exchange

Difficulty: 3

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

29.3E In Problem 29.1, suppose that Morris has the utility function $U(b, w) = 1b + 3w$ and Philip has the utility function $U(b, w) = bw$. If we draw an Edgeworth box with books on the horizontal axis and wine on the vertical axis and if we measure Morris' consumptions from the lower left corner of the box, then the contract curve contains

(a) a straight line running from the upper right corner of the box to the lower left.

(b) a curve that gets steeper as you move from left to right.

(c) a straight line with slope 1/3 passing through the lower left corner of the box.

(d) a straight line with slope 1/3 passing through the upper right corner of the box.

(e) a curve that gets flatter as you move from left to right.

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

29.4E In Problem 29.2, Astrid's utility function is $U(H_a, C_A) = H_A C_A$. Birger's utility function is $min\{H_B, C_B\}$. If Astrid's initial endowment is no cheese and 12 units of herring and if Birger's initial endowments are 4 units of cheese and no herring, then where p is a competitive equilibrium price of herring and cheese is the numeraire, it must be that demand equals supply in the herring market. This implies that

(a) $4/(p + 1) + 6 = 12$

(b) $4/12 = p$

(c) $12/4 = p$

(d) $4/p + 12/2p = 12$

(e) $Min\{12, 4\} = p$

Topic: Exchange

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

29.5E Suppose that in Problem 29.8, Mutt's utility function is $U(m,j) = max\{3m,j\}$ and Jeff's utility function is $U(m,j) = 4m + j$. Mutt is initially endowed with 5 units of milk and 2 units of juice and Jeff is initially endowed with 3 units of milk and 6 units of juice.If we draw an Edgeworth box with milk on the horizontal axis and juice on the vertical axis and if we measure goods for Mutt by the distance from the lower left corner of the box, then the set of Pareto optimal allocations includes the

(a) left edge of the Edgeworth box, but no other edges.

(b) bottom edge of the Edgeworth box, but no other edges.

(c) left edge and bottom edge of the Edgeworth box.

(d) right edge of the Edgeworth box, but no other edges.

(e) right edge and top edge of the Edgeworth box.

Topic: Exchange

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

29.6E In Problem 29.3, Professor Nightsoil's utility function is $U_N(B_N, P_N) = B_N + 4P_N^{1/2}$ and Dean Interface's utility function is $U_I(B_I, P_I) = B_I + 2P_I^{1/2}$. If Nightsoil's initial endowment is 2 bromides and 25 platitudes and if Interface's initial endowment is 6 bromides and 25 platitudes, then at any Pareto efficient allocation where both persons consume positive amounts of both goods, it must be that

(a) Nightsoil consumes the same ratio of bromides to platitudes as Interface.

(b) Interface consumes 10 platitudes.

(c) Interface consumes 4 bromides.

(d) Interface consumes 5 bromides.

(e) Interface consumes 5 platitudes.

Chapter 30

Multiple Choice   Production

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.1A   Suppose that in Problem 30.1, Tip can write 5 pages of term papers or solve 10 workbook problems in an hour, while Spot can write 2 pages of term papers or solve 2 workbook problems in an hour. If they each decide to work a total of 6 hours, and to share their output then if they produce as many pages of term paper as possible given that they produce 25 workbook problems,

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.2A   Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 6 geegaws per hour or 18 doodads per hour. Bill can make 3 geegaws per hour or 12 doodads per hour. Assuming that neither of them finds one task more odious than the other,

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

30.3A

(See Prob. 30.5) Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 12 units of red money to spend and 10 units of blue money to spend. The red price of ambrosia is 1 and the blue price of ambrosia is 2. The red price of bubblegum is 1 and the blue price of bubblegum is 1. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded

(a) by two line segments, one running from $(0, 22)$ to $(12, 10)$ and another running from $(12, 10)$ to $(17, 0)$.

(b) by two line segments one running from $(0, 22)$ to $(5, 12)$ and the other running from $(5, 12)$ to $(17, 0)$.

(c) by two line segments, one running from $(0, 15)$ to $(12, 10)$ and the other running from $(12, 10)$ to $(24, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(12, 10)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(5, 12)$.

30.4A   (See Problem 30.2) Robinson Crusoe has exactly 14 hours per day to spend gathering coconuts or catching fish. He can catch 5 fish per hour or he can pick 20 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1,

(a) his income is 280, and the price of fish is 4.

(b) his income is 70, and the price of fish is 5.

(c) his income is 350 and the price of fish is 5.

(d) his income is 280 and the price of fish is 0.20.

(e) his income is 175 and the price of fish is 0.20.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

30.5A   On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 16 units of milk or 31 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation,

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 8,000.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

30.1B Suppose that in Problem 30.1, Tip can write 4 pages of term papers or solve 16 workbook problems in an hour, while Spot can write 3 pages of term papers or solve 6 workbook problems in an hour. If they each decide to work a total of 5 hours, and to share their output then if they produce as many pages of term paper as possible given that they produce 16 workbook problems,

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

30.2B Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 6 geegaws per hour or 12 doodads per hour. Bill can make 3 geegaws per hour or 9 doodads per hour. Assuming that neither of them finds one task more odious than the other,

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

30.3B

(See Prob. 30.5) Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 36 units of red money to spend and 50 units of blue money to spend. The red price of ambrosia is 4 and the blue price of ambrosia is 10. The red price of bubblegum is 1 and the blue price of bubblegum is 2. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded

(a) by two line segments, one running from $(0, 61)$ to $(9, 25)$ and another running from $(9, 25)$ to $(14, 0)$.

(b) by two line segments one running from $(0, 61)$ to $(5, 36)$ and the other running from $(5, 36)$ to $(14, 0)$.

(c) by two line segments, one running from $(0, 30)$ *to* $(9, 25)$ and the other running from $(9, 25)$ to $(45, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(9, 25)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(5, 36)$.

Topic: Production

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

30.4B (See Problem 30.2) Robinson Crusoe has exactly 8 hours per day to spend gathering coconuts or catching fish. He can catch 5 fish per hour or he can pick 10 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1,

(a) his income is 80, and the price of fish is 2.

(b) his income is 40, and the price of fish is 5.

(c) his income is 120 and the price of fish is 5.

(d) his income is 80 and the price of fish is 0.20.

(e) his income is 60 and the price of fish is 0.20.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

30.5B   On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 14 units of milk or 34 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation,

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 7,000.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

Topic: Production

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

30.1C Suppose that in Problem 30.1, Tip can write 5 pages of term papers or solve 15 workbook problems in an hour, while Spot can write 3 pages of term papers or solve 12 workbook problems in an hour. If they each decide to work a total of 6 hours, and to share their output then if they produce as many pages of term paper as possible given that they produce 25 workbook problems,

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

30.2C Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 4 geegaws per hour or 16 doodads per hour. Bill can make 3 geegaws per hour or 9 doodads per hour. Assuming that neither of them finds one task more odious than the other,

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

Topic: Production   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

30.3C

(See Prob. 30.5) Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 15 units of red money to spend and 40 units of blue money to spend. The red price of ambrosia is 3 and the blue price of ambrosia is 4. The red price of bubblegum is 1 and the blue price of bubblegum is 1. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded

(a) by two line segments, one running from $(0, 55)$ to $(5, 40)$ and another running from $(5, 40)$ to $(15, 0)$.

(b) by two line segments one running from $(0, 55)$ to $(10, 15)$ and the other running from $(10, 15)$ to $(15, 0)$.

(c) by two line segments, one running from $(0, 50)$ to $(5, 40)$ and the other running from $(5, 40)$ to $(20, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(5, 40)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(10, 15)$.

Topic: Production   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

30.4C   (See Problem 30.2) Robinson Crusoe has exactly 8 hours per day to spend gathering coconuts or catching fish. He can catch 4 fish per hour or he can pick 8 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1,

(a) his income is 64, and the price of fish is 2.

(b) his income is 32, and the price of fish is 4.

(c) his income is 96 and the price of fish is 4.

(d) his income is 64 and the price of fish is 0.25.

(e) his income is 48 and the price of fish is 0.25.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

30.5C   On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 11 units of milk or 22 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M,W) = MW$. At every Pareto optimal allocation,

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 5,500.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.1D   Suppose that in Problem 30.1, Tip can write 3 pages of term papers or solve 9 workbook problems in an hour, while Spot can write 2 pages of term papers or solve 2 workbook problems in an hour. If they each decide to work a total of 5 hours, and to share their output then if they produce as many pages of term paper as possible given that they produce 12 workbook problems,

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

30.2D   Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 4 geegaws per hour or 24 doodads per hour. Bill can make 3 geegaws per hour or 6 doodads per hour. Assuming that neither of them finds one task more odious than the other,

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

Topic: Production

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

30.3D

(See Prob. 30.5) Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 28 units of red money to spend and 45 units of blue money to spend. The red price of ambrosia is 4 and the blue price of ambrosia is 5. The red price of bubblegum is 1 and the blue price of bubblegum is 1. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded

(a) by two line segments, one running from $(0, 73)$ to $(7, 45)$ and another running from $(7, 45)$ to $(16, 0)$.

(b) by two line segments one running from $(0, 73)$ to $(9, 28)$ and the other running from $(9, 28)$ to $(16, 0)$.

(c) by two line segments, one running from $(0, 54) to$ $(7, 45)$ and the other running from $(7, 45)$ to $(35, 0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(7, 45)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(9, 28)$.

Topic: Production

% Correct Responses: 0

Correct Answer: A

Difficulty: 0

Discrimination Index: 0

30.4D (See Problem 30.2) Robinson Crusoe has exactly 14 hours per day to spend gathering coconuts or catching fish. He can catch 4 fish per hour or he can pick 12 coconuts per hour. His utility function is $U(F, C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1,

(a) his income is 168, and the price of fish is 3.

(b) his income is 56, and the price of fish is 4.

(c) his income is 224 and the price of fish is 4.

(d) his income is 168 and the price of fish is 0.25.

(e) his income is 112 and the price of fish is 0.25.

30.5D   On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 8 units of milk or 24 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation,

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 4,000.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.1E   Suppose that in Problem 30.1, Tip can write 4 pages of term papers or solve 4 workbook problems in an hour, while Spot can write 2 pages of term papers or solve 4 workbook problems in an hour. If they each decide to work a total of 6 hours, and to share their output then if they produce as many pages of term paper as possible given that they produce 20 workbook problems,

(a) Spot will spend all of his time writing term papers and Tip will spend some time at each task.

(b) Tip will spend all of his time writing term papers and Spot will spend some time at each task.

(c) Both students will spend some time at each task.

(d) Spot will write term papers only and Tip will do workbook problems only.

(e) Tip will write term papers only and Spot will do workbook problems only.

Topic: Production
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

30.2E   Al and Bill are the only workers in a small factory which makes geegaws and doodads. Al can make 4 geegaws per hour or 12 doodads per hour. Bill can make 3 geegaws per hour or 18 doodads per hour. Assuming that neither of them finds one task more odious than the other,

(a) Al has comparative advantage in producing geegaws and Bill has comparative advantage in producing doodads.

(b) Bill has comparative advantage in producing geegaws and Al has comparative advantage in producing doodads.

(c) Al has comparative advantage in producing both geegaws and doodads.

(d) Bill has comparative advantage in producing both geegaws and doodads.

(e) Both persons have comparative advantage in producing doodads.

30.3E

(See Prob. 30.5) Every consumer has a red-money income and a blue-money income and each commodity has a red price and a blue price. You can buy a good by paying for it either with blue money at the blue price, or with red money at the red price. Harold has 20 units of red money to spend and 30 units of blue money to spend. The red price of ambrosia is 4 and the blue price of ambrosia is 5. The red price of bubblegum is 1 and the blue price of bubblegum is 1. If ambrosia is on the horizontal axis, and bubblegum on the vertical, axis, then Harold's budget set is bounded

(a) by two line segments, one running from $(0,50)$ to $(5, 30)$ and another running from $(5,30)$ to $(11,0)$.

(b) by two line segments one running from $(0,50)$ to $(6, 20)$ and the other running from $(6,20)$ to $(11,0)$.

(c) by two line segments, one running from $(0,36)$ to $(5,30)$ and the other running from $(5,30)$ to $(25,0)$.

(d) a vertical line segment and a horizontal line segement, intersecting at $(5,30)$.

(e) a vertical line segment and a horizontal line segment, intersecting at $(6,20)$.

30.4E   (See Problem 30.2) Robinson Crusoe has exactly 14 hours per day to spend gathering coconuts or catching fish. He can catch 5 fish per hour or he can pick 10 coconuts per hour. His utility function is $U(F,C) = FC$ where F is his consumption of fish and C is his consumption of coconuts. If he allocates his time in the best possible way between catching fish and picking coconuts, his consumption will be the same as it would be if he could buy fish and coconuts in a competitive market where the price of coconuts is 1,

(a) his income is 140, and the price of fish is 2.

(b) his income is 70, and the price of fish is 5.

(c) his income is 210 and the price of fish is 5.

(d) his income is 140 and the price of fish is 0.20.

(e) his income is 105 and the price of fish is 0.20.

Topic: Production   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

30.5E   On a certain island there are only two goods, wheat and milk. The only scarce resource is land. There are 1000 acres of land. An acre of land will produce either 5 units of milk or 29 units of wheat. Some citizens have lots of land, some have just a little bit. The citizens of the island all have utility functions of the form $U(M, W) = MW$. At every Pareto optimal allocation,

(a) the number of units of milk produced equals the number of units of wheat produced.

(b) total milk production is 2,500.

(c) all citizens consume the same commodity bundle.

(d) every consumer's marginal rate of substitution between milk and wheat is -1.

(e) None of the above is true at EVERY Pareto optimal allocation.

Chapter 31

Multiple Choice Welfare

31.1A A Borda count is used to decide an election between 3 candidates, x,y, and z where a score of 1 is awarded to a first choice, 2 to a second choice and 3 to a third choice. There are 25 voters. 10 voters rank the candidates x first, y second, z third; 7 voters rank the candidates x first, z second, y third; 5 rank the candidates, z first, y second, x third; 3 voters rank the candidates, y first, z second, x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

31.2A A parent has two children living in cities with different costs of living. The cost of living in city B is 2 times the cost of living in city A. The child in city A has an income of 5,000 and the child in city B has an income of 10,000. The parent wants to give a total of \$4,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to

(a) give each child \$2,000, even though this will buy less goods for the child in city B.

(b) give the child in city B 2 times as much money as the child in city B.

(c) Give the child in city A 2 times as much money as the child in city B.

(d) Give the child in city B 1 times as much money as the child in city A.

(e) Give the child in city A 1 times as much money as the child in city B.

Topic: Welfare   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

31.3A   Suppose that Paul and David from Problem 31.7 have utility functions $U = 4A_P + O_P$ and $U = A_D + 5O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 16 apples and 16 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $8A_P + 2O_P$ is at least 80 and $2A_D + 10O_D$ is at least 96.

(c) $4A_P + O_P$ is at least 80 and $2A_D + 5O_D$ is at least 96

(d) $A_D + O_D$ is at least 16 and $A_S + O_S$ is at least 16.

(e) $4A_P + O_P$ is at least $A_D + 5O_D$ and $A_D + 5O_D$ is at least $4A_P + O_P$.

Topic: Welfare   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: E

31.4A   Suppose that Romeo in Problem 31.8 has the utility function $U = S_R^8 S_J^4$ and Juliet has the utility function $U = S_R^4 S_J^8$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 120 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 60 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 78 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 76 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 80 units of spaghetti.

Topic: Welfare   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

31.5A   Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/8$ and McCoy's utility is $U = W_M - W_H^2/8$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 48 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each

(a) 24 gallons.

(b) 4 gallons and spill 40 gallons in the creek.

(c) 2 gallons and spill 44 gallons in the creek.

(d) 8 gallons and spill the rest in the creek.

(e) 1 gallons and spill the rest in the creek.

Multiple Choice   Welfare

31.1B   A Borda count is used to decide an election between 3 candidates, x,y, and z where a score of 1 is awarded to a first choice, 2 to a second choice and 3 to a third choice. There are 26 voters. 3 voters rank the candidates x first, y second, z third; 6 voters rank the candidates x first, z second, y third; 9 rank the candidates, z first, y second, x third; 8 voters rank the candidates, y first, z second, x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

31.2B   A parent has two children living in cities with different costs of living. The cost of living in city B is 3 times the cost of living in city A. The child in city A has an income of 2,000 and the child in city B has an income of 6,000. The parent wants to give a total of \$2,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to

(a) give each child \$1,000, even though this will buy less goods for the child in city B.

(b) give the child in city B 3 times as much money as the child in city B.

(c) Give the child in city A 3 times as much money as the child in city B.

(d) Give the child in city B 1.50 times as much money as the child in city A.

(e) Give the child in city A 1.50 times as much money as the child in city B.

31.3B   Suppose that Paul and David from Problem 31.7 have utility functions $U = 2A_P + O_P$ and $U = A_D + 2O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 14 apples and 20 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $4A_P + 2O_P$ is at least 48 and $2A_D + 4O_D$ is at least 54.

(c) $2A_P + O_P$ is at least 48 and $2A_D + 2O_D$ is at least 54

(d) $A_D + O_D$ is at least 17 and $A_S + O_S$ is at least 17.

(e) $2A_P + O_P$ is at least $A_D + 2O_D$ and $A_D + 2O_D$ is at least $2A_P + O_P$.

31.4B   Suppose that Romeo in Problem 31.8 has the utility function $U = S_R^8 S_J^4$ and Juliet has the utility function $U = S_R^4 S_J^8$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 60 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 30 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 38 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 36 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 40 units of spaghetti.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

31.5B   Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/32$ and McCoy's utility is $U = W_M - W_H^2/32$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 52 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each

(a) 26 gallons.

(b) 16 gallons and spill 20 gallons in the creek.

(c) 8 gallons and spill 36 gallons in the creek.

(d) 20 gallons and spill the rest in the creek.

(e) 4 gallons and spill the rest in the creek.

Multiple Choice   Welfare

31.1C   A Borda count is used to decide an election between 3 candidates, x,y, and z where a score of 1 is awarded to a first choice, 2 to a second choice and 3 to a third choice. There are 29 voters. 10 voters rank the candidates x first, y second, z third; 6 voters rank the candidates x first, z second, y third; 8 rank the candidates, z first, y second, x third; 5 voters rank the candidates, y first, z second, x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

31.2C   A parent has two children living in cities with different costs of living. The cost of living in city B is 4 times the cost of living in city A. The child in city A has an income of 4,000 and the child in city B has an income of 16,000. The parent wants to give a total of \$3,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to

(a) give each child \$1,500, even though this will buy less goods for the child in city B.

(b) give the child in city B 4 times as much money as the child in city B.

(c) Give the child in city A 4 times as much money as the child in city B.

(d) Give the child in city B 2 times as much money as the child in city A.

(e) Give the child in city A 2 times as much money as the child in city B.

31.3C Suppose that Paul and David from Problem 31.7 have utility functions $U = 5A_P + O_P$ and $U = A_D + 4O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 10 apples and 20 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $10A_P + 2O_P$ is at least 70 and $2A_D + 8O_D$ is at least 90.

(c) $5A_P + O_P$ is at least 70 and $2A_D + 4O_D$ is at least 90

(d) $A_D + O_D$ is at least 15 and $A_S + O_S$ is at least 15.

(e) $5A_P + O_P$ is at least $A_D + 4O_D$ and $A_D + 4O_D$ is at least $5A_P + O_P$.

31.4C Suppose that Romeo in Problem 31.8 has the utility function $U = S_R^5 S_J^2$ and Juliet has the utility function $U = S_R^2 S_J^5$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 35 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 17.50 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 23 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 21 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 25 units of spaghetti.

Topic: Welfare   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

31.5C   Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/40$ and McCoy's utility is $U = W_M - W_H^2/40$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 70 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each

(a) 35 gallons.

(b) 20 gallons and spill 30 gallons in the creek.

(c) 10 gallons and spill 50 gallons in the creek.

(d) 24 gallons and spill the rest in the creek.

(e) 5 gallons and spill the rest in the creek.

Topic: Welfare Difficulty: 0

% Correct Responses: 0 Discrimination Index: 0

Correct Answer: A

31.1D A Borda count is used to decide an election between 3 candidates, x,y, and z where a score of 1 is awarded to a first choice, 2 to a second choice and 3 to a third choice. There are 18 voters. 2 voters rank the candidates x first, y second, z third; 6 voters rank the candidates x first, z second, y third; 7 rank the candidates, z first, y second, x third; 3 voters rank the candidates, y first, z second, x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

Topic: Welfare Difficulty: 0

% Correct Responses: 0 Discrimination Index: 0

Correct Answer: A

31.2D A parent has two children living in cities with different costs of living. The cost of living in city B is 2 times the cost of living in city A. The child in city A has an income of 5,000 and the child in city B has an income of 10,000. The parent wants to give a total of \$2,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to

(a) give each child \$1,000, even though this will buy less goods for the child in city B.

(b) give the child in city B 2 times as much money as the child in city B.

(c) Give the child in city A 2 times as much money as the child in city B.

(d) Give the child in city B 1 times as much money as the child in city A.

(e) Give the child in city A 1 times as much money as the child in city B.

Topic: Welfare   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

31.3D   Suppose that Paul and David from Problem 31.7 have utility functions $U = 2A_P + O_P$ and $U = A_D + 3O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 16 apples and 20 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $4A_P + 2O_P$ is at least 52 and $2A_D + 6O_D$ is at least 76.

(c) $2A_P + O_P$ is at least 52 and $2A_D + 3O_D$ is at least 76

(d) $A_D + O_D$ is at least 18 and $A_S + O_S$ is at least 18.

(e) $2A_P + O_P$ is at least $A_D + 3O_D$ and $A_D + 3O_D$ is at least $2A_P + O_P$.

Topic: Welfare   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

31.4D   Suppose that Romeo in Problem 31.8 has the utility function $U = S_R^2 S_J^1$ and Juliet has the utility function $U = S_R^1 S_J^2$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 24 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 12 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 14 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 12 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 16 units of spaghetti.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

31.5D Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/16$ and McCoy's utility is $U = W_M - W_H^2/16$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 46 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each

(a) 23 gallons.

(b) 8 gallons and spill 30 gallons in the creek.

(c) 4 gallons and spill 38 gallons in the creek.

(d) 12 gallons and spill the rest in the creek.

(e) 2 gallons and spill the rest in the creek.

31.1E   A Borda count is used to decide an election between 3 candidates, x,y, and z where a score of 1 is awarded to a first choice, 2 to a second choice and 3 to a third choice. There are 15 voters. 4 voters rank the candidates x first, y second, z third; 6 voters rank the candidates x first, z second, y third; 2 rank the candidates, z first, y second, x third; 3 voters rank the candidates, y first, z second, x third. Which candidate wins?

(a) Candidate x.

(b) Candidate y.

(c) Candidate z.

(d) There is a tie between x and y, with z coming in third.

(e) There is a tie between y and z, with x coming in third.

31.2E   A parent has two children living in cities with different costs of living. The cost of living in city B is 5 times the cost of living in city A. The child in city A has an income of 3,000 and the child in city B has an income of 15,000. The parent wants to give a total of \$3,000 to her two children. Her utility function is $U(C_A, C_B) = C_A C_B$, where C_A and C_B are the consumptions of the children living in cities A and B respectively. She will choose to

(a) give each child \$1,500, even though this will buy less goods for the child in city B.

(b) give the child in city B 5 times as much money as the child in city B.

(c) Give the child in city A 5 times as much money as the child in city B.

(d) Give the child in city B 2.50 times as much money as the child in city A.

(e) Give the child in city A 2.50 times as much money as the child in city B.

31.3E   Suppose that Paul and David from Problem 31.7 have utility functions $U = 2A_P + O_P$ and $U = A_D + 3O_D$, respectively, where A_P and O_P are Paul's consumptions of apples and oranges and A_D and O_D are David's consumptions of apples and oranges. The total supply of apples and oranges to be divided between them is 18 apples and 20 oranges. The "fair" allocations consist of all allocations satisfying the following conditions.

(a) $A_D = A_P$ and $O_D = O_P$.

(b) $4A_P + 2O_P$ is at least 56 and $2A_D + 6O_D$ is at least 78.

(c) $2A_P + O_P$ is at least 56 and $2A_D + 3O_D$ is at least 78

(d) $A_D + O_D$ is at least 19 and $A_S + O_S$ is at least 19.

(e) $2A_P + O_P$ is at least $A_D + 3O_D$ and $A_D + 3O_D$ is at least $2A_P + O_P$.

31.4E   Suppose that Romeo in Problem 31.8 has the utility function $U = S_R^5 S_J^3$ and Juliet has the utility function $U = S_R^3 S_J^5$ where S_R is Romeo's spaghetti consumption and S_J is Juliet's. They have 56 units of spaghetti to divide between them.

(a) Romeo would want to give Juliet some spaghetti if he had more than 28 units of spaghetti.

(b) Juliet would want to give Romeo some spaghetti if she has more than 33 units.

(c) Romeo and Juliet would never disagree about how to divide the spaghetti.

(d) Romeo would want to give Juliet some spaghetti if he has more than 31 units of spaghetti.

(e) Juliet would want to give Romeo some spaghetti if she has more than 35 units of spaghetti.

Topic: Welfare

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

31.5E   Hatfield and McCoy burn with hatred for each other. They both consume corn whisky. Hatfield's utility function is $U = W_H - W_M^2/24$ and McCoy's utility is $U = W_M - W_H^2/24$, where W_H is Hatfield's whisky consumption and W_M is McCoy's whisky consumption, measured in gallons. The sheriff has a total of 64 units of confiscated whisky which he could give back to them. For some reason, the sheriff wants them both to be as happy as possible and he wants to treat them equally. The sheriff should give them each

(a) 32 gallons.

(b) 12 gallons and spill 40 gallons in the creek.

(c) 6 gallons and spill 52 gallons in the creek.

(d) 16 gallons and spill the rest in the creek.

(e) 3 gallons and spill the rest in the creek.

Chapter 32

Multiple Choice   Externalities

32.1A   Suppose that in Horsehead Massachusetts, the cost of operating a lobster boat is $2,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $1000(10x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 8$ and $X2 = 8$.

(b) $X1 = 4$ and $X2 = 2$

(c) $X1 = 8$ and $X2 = 4$

(d) $X1 = 12$ and $X2 = 8$

(e) None of the other options are correct.

32.2A   In Problem 32.2, suppose that the cost function of the honey farm is $C_H(H, A) = H^2/100 - 3A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 7 and the price of apples is 5 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a profit-maximizing single owner. Then,

(a) $A1 = 125$ and $A2 = 250$

(b) $A1 = A2 = 250$

(c) $A1 = 200$ and $A2 = 250$

(d) $A1 = 250$ and $A2 = 400$

(e) $A1 = 350$ and $A2 = 250$

Topic: Externalities
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

32.3A In Problem 32.3, suppose Wilfred, a typical citizen, has the utility function, $U(m, d, h) = m + 13d - d^2 - 4h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other people in his home town and m is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost $1 per hour of driving. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive to maximize the utility of a typical citizen, they will all drive D2 per day, where

(a) $D1 = 6$ and $D2 = 4$.

(b) $D1 = D2 = 6$.

(c) $D1 = 8$ and $D2 = 5$.

(d) $D1 = 9$ and $D2 = 0$.

(e) $D1 = 6$ $D2 = 2$.

Topic: Externalities
% Correct Responses: 0
Correct Answer: B

Difficulty: 0
Discrimination Index: 0

32.4A An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $22X - X^2$ and profits of the developer are $26Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to developer's profits. Then

(a) $H1 = H2 = 10$.

(b) $H1 = 10$ and $H2 = 13$.

(c) $H1 = 13$ and $H2 = 10$

(d) $H1 = 12$ and $H2 = 12$

(e) $H1 = 12$ and $H2 = 16$

Topic: Externalities

Difficulty: 2

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

32.5A   A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(6+J)C - C^2$ and the profits of the jeweler will be $(6+C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be

(a) 5

(b) 10

(c) 15

(d) 2.50

(e) 7.50

Multiple Choice   Externalities

32.1B   Suppose that in Horsehead Massachusetts, the cost of operating a lobster boat is $5,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $1000(21x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 16$ and $X2 = 16$.

(b) $X1 = 8$ and $X2 = 6$

(c) $X1 = 16$ and $X2 = 8$

(d) $X1 = 20$ and $X2 = 12$

(e) None of the other options are correct.

32.2B   In Problem 32.2, suppose that the cost function of the honey farm is $C_H(H, A) = H^2/100 - 3A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 7 and the price of apples is 1 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a profit-maximizing single owner. Then,

(a) $A1 = 25$ and $A2 = 50$

(b) $A1 = A2 = 50$

(c) $A1 = 100$ and $A2 = 50$

(d) $A1 = 50$ and $A2 = 200$

(e) $A1 = 350$ and $A2 = 50$

Topic: Externalities

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

32.3B In Problem 32.3, suppose Lawrence, a typical citizen, has the utility function, $U(m, d, h) = m + 11d - d^2 - 2h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other people in his home town and m is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$1 per hour of driving. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive to maximize the utility of a typical citizen, they will all drive D2 per day, where

(a) $D1 = 5$ and $D2 = 4$.

(b) $D1 = D2 = 5$.

(c) $D1 = 7$ and $D2 = 5$.

(d) $D1 = 8$ and $D2 = 0$.

(e) $D1 = 5$ $D2 = 2$.

Topic: Externalities

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

32.4B An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $18X - X^2$ and profits of the developer are $24Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to developer's profits. Then

(a) $H1 = H2 = 10$.

(b) $H1 = 10$ and $H2 = 12$.

(c) $H1 = 12$ and $H2 = 10$

(d) $H1 = 12$ and $H2 = 11$

(e) $H1 = 11$ and $H2 = 15$

Topic: Externalities

% Correct Responses: 0

Correct Answer: A

Difficulty: 2

Discrimination Index: 0

32.5B   A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(36 + J)C - C^2$ and the profits of the jeweler will be $(72 + C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be

(a) 36

(b) 72

(c) 108

(d) 18

(e) 54

Topic: Externalities   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

32.1C   Suppose that in Horsehead Massachusetts, the cost of operating a lobster boat is \$3,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $\$1000(23x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 20$ and $X2 = 20$.

(b) $X1 = 10$ and $X2 = 8$

(c) $X1 = 20$ and $X2 = 10$

(d) $X1 = 24$ and $X2 = 14$

(e) None of the other options are correct.

Topic: Externalities   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

32.2C   In Problem 32.2, suppose that the cost function of the honey farm is $C_H(H, A) = H^2/100 - 3A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 1 and the price of apples is 6 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a profit-maximizing single owner. Then,

(a) $A1 = 150$ and $A2 = 300$

(b) $A1 = A2 = 300$

(c) $A1 = 225$ and $A2 = 300$

(d) $A1 = 300$ and $A2 = 450$

(e) $A1 = 50$ and $A2 = 300$

32.3C   In Problem 32.3, suppose Fred, a typical citizen, has the utility function, $U(m, d, h) = m + 9d - d^2 - 2h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other people in his home town and m is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$1 per hour of driving. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive to maximize the utility of a typical citizen, they will all drive D2 per day, where

(a) $D1 = 4$ and $D2 = 3$.

(b) $D1 = D2 = 4$.

(c) $D1 = 6$ and $D2 = 4$.

(d) $D1 = 7$ and $D2 = 0$.

(e) $D1 = 4$ $D2 = 1$.

32.4C   An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $26X - X^2$ and profits of the developer are $28Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to developer's profits. Then

(a) $H1 = H2 = 10$.

(b) $H1 = 10$ and $H2 = 14$.

(c) $H1 = 14$ and $H2 = 10$

(d) $H1 = 12$ and $H2 = 13$

(e) $H1 = 13$ and $H2 = 17$

Topic: Externalities

% Correct Responses: 0

Correct Answer: A

Difficulty: 2

Discrimination Index: 0

32.5C   A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(6+J)C - C^2$ and the profits of the jeweler will be $(42+C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be

(a) 11

(b) 22

(c) 33

(d) 5.50

(e) 16.50

Multiple Choice   Externalities

32.1D   Suppose that in Horsehead Massachusetts, the cost of operating a lobster boat is $5,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $1000(21x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 16$ and $X2 = 16$.

(b) $X1 = 8$ and $X2 = 6$

(c) $X1 = 16$ and $X2 = 8$

(d) $X1 = 20$ and $X2 = 12$

(e) None of the other options are correct.

32.2D   In Problem 32.2, suppose that the cost function of the honey farm is $C_H(H, A) = H^2/100 - 2A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 6 and the price of apples is 5 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a profit-maximizing single owner. Then,

(a) $A1 = 125$ and $A2 = 250$

(b) $A1 = A2 = 250$

(c) $A1 = 175$ and $A2 = 250$

(d) $A1 = 250$ and $A2 = 350$

(e) $A1 = 300$ and $A2 = 250$

Topic: Externalities

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: A

32.3D   In Problem 32.3, suppose Tiny, a typical citizen, has the utility function, $U(m, d, h) = m + 11d - d^2 - 6h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other people in his home town and m is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$1 per hour of driving. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive to maximize the utility of a typical citizen, they will all drive D2 per day, where

(a) $D1 = 5$ and $D2 = 2$.

(b) $D1 = D2 = 5$.

(c) $D1 = 7$ and $D2 = 3$.

(d) $D1 = 8$ and $D2 = 1$.

(e) $D1 = 5$ $D2 = 0$.

Topic: Externalities

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

32.4D   An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $36X - X^2$ and profits of the developer are $42Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to developer's profits. Then

(a) $H1 = H2 = 16$.

(b) $H1 = 16$ and $H2 = 21$.

(c) $H1 = 21$ and $H2 = 16$

(d) $H1 = 18$ and $H2 = 20$

(e) $H1 = 20$ and $H2 = 24$

Topic: Externalities

% Correct Responses: 0

Correct Answer: A

Difficulty: 2

Discrimination Index: 0

32.5D   A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(36 + J)C - C^2$ and the profits of the jeweler will be $(60 + C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be

(a) 34

(b) 68

(c) 102

(d) 17

(e) 51

Topic: Externalities   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

32.1E   Suppose that in Horsehead Massachusetts, the cost of operating a lobster boat is \$5,000 per month. Suppose that if x lobster boats operate in the bay, the total monthly revenue from lobster boats in the bay is $\$1000(21x - x^2)$. If there are no restrictions on entry and new boats come into the bay until there is no profit to be made by a new entrant, then the number of boats who enter will be X1. If the number of boats that operate in the bay is regulated to maximize total profits, the number of boats in the bay will be X2.

(a) $X1 = 16$ and $X2 = 16$.

(b) $X1 = 8$ and $X2 = 6$

(c) $X1 = 16$ and $X2 = 8$

(d) $X1 = 20$ and $X2 = 12$

(e) None of the other options are correct.

Topic: Externalities   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

32.2E   In Problem 32.2, suppose that the cost function of the honey farm is $C_H(H, A) = H^2/100 - 2A$ and the cost function of the apple orchard is $C_A(H, A) = A^2/100$ where H and A are the number of units of honey and apples produced respectively. The price of honey is 6 and the price of apples is 3 per unit. Let A1 be the output of apples if the firms operate independently, and let A2 be the output of apples if the firms are operated by a profit-maximizing single owner. Then,

(a) $A1 = 75$ and $A2 = 150$

(b) $A1 = A2 = 150$

(c) $A1 = 125$ and $A2 = 150$

(d) $A1 = 150$ and $A2 = 250$

(e) $A1 = 300$ and $A2 = 150$

32.3E In Problem 32.3, suppose Don, a typical citizen, has the utility function, $U(m, d, h) = m + 13d - d^2 - 4h$, where d is the number of hours per day that he spends driving around, h is the average number of hours per day spent driving around by other people in his home town and m is the amount of money he has left to spend on other stuff besides gasoline and auto repairs. Gas and auto repairs cost \$1 per hour of driving. If each citizen believes that his own driving will not affect the amount of driving done by others, they will all drive D1 hours per day. If they are all drive to maximize the utility of a typical citizen, they will all drive D2 per day, where

(a) $D1 = 6$ and $D2 = 4$.

(b) $D1 = D2 = 6$.

(c) $D1 = 8$ and $D2 = 5$.

(d) $D1 = 9$ and $D2 = 0$.

(e) $D1 = 6$ $D2 = 2$.

32.4E An airport is located next to a housing development. Where X is the number of planes that land per day and Y is the number of houses in the housing development, profits of the airport are $42X - X^2$ and profits of the developer are $42Y - Y^2 - XY$. Let H1 be the number of houses built if a single profit-maximizing company owns the airport and the housing development. Let H2 be the number of houses built if the airport and the housing development are operated independently and the airport has to pay the developer the total "damages" XY done by the planes to developer's profits. Then

(a) $H1 = H2 = 14$.

(b) $H1 = 14$ and $H2 = 21$.

(c) $H1 = 21$ and $H2 = 14$

(d) $H1 = 16$ and $H2 = 20$

(e) $H1 = 20$ and $H2 = 24$

Topic: Externalities

% Correct Responses: 0

Correct Answer: A

Difficulty: 2

Discrimination Index: 0

32.5E A clothing store and a jeweler are located side by side in a shopping mall. If the clothing store spend C dollars on advertising and the jeweler spends J dollars on advertising, then the profits of the clothing store will be $(24 + J)C - C^2$ and the profits of the jeweler will be $(36 + C)J - 2J^2$. The clothing store gets to choose his amount of advertising first, knowing that the jeweler will find out how much the clothing store advertised before deciding how much to spend. The amount spent by the clothing store will be

(a) 22

(b) 44

(c) 66

(d) 11

(e) 33

Chapter 33

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: D

Difficulty: 0
Discrimination Index: 0

33.1A   Madame N. gets a total payment of $7 \log x$ if she delivers x stolen buttons to her "fence". She has to pay a fine of F if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame Noriega to taking 7 buttons?

(a) $5

(b) $100

(c) $14

(d) $10

(e) $15

Topic: Law and Economics
% Correct Responses: 0
Correct Answer: B

Difficulty: 0
Discrimination Index: 0

33.2A   Jim rides his trailbike through the woods at speed s and has money m_J. His utility function he doesn't run into Dick is $16s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim doesn't run into him is $10w + m_D$. The probability and severity of an accident depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident to each of them is $s^2 + w^2$. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 8$ and $w = 10$

(b) $s = 8$ and $w = 5$

(c) $s = 16$ and $w = 10$

(d) $s = 13$ and $w = 5$

(e) $s = 4$ and $w = 2.50$

Topic: Law and Economics

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

33.1B Madame N. gets a total payment of $\$8 \log x$ if she delivers x stolen buttons to her "fence". She has to pay a fine of $\$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame Noriega to taking 8 buttons?

(a) $\$5$

(b) $\$100$

(c) $\$14$

(d) $\$10$

(e) $\$15$

Topic: Law and Economics

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: B

33.2B Jim rides his trailbike through the woods at speed s and has money m_J. His utility function he doesn't run into Dick is $24s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim doesn't run into him is $10w + m_D$. The probability and severity of an accident depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident to each of them is $s^2 + w^2$. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 12$ and $w = 10$

(b) $s = 12$ and $w = 5$

(c) $s = 24$ and $w = 10$

(d) $s = 17$ and $w = 5$

(e) $s = 6$ and $w = 2.50$

Topic: Law and Economics

% Correct Responses: 0

Correct Answer: D

Difficulty: 0

Discrimination Index: 0

33.1C   Madame N. gets a total payment of \$35 log x if she delivers x stolen buttons to her "fence". She has to pay a fine of \$$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame Noriega to taking 7 buttons?

(a) \$25

(b) \$500

(c) \$54

(d) \$50

(e) \$75

Topic: Law and Economics

% Correct Responses: 0

Correct Answer: B

Difficulty: 0

Discrimination Index: 0

33.2C   Jim rides his trailbike through the woods at speed s and has money m_J. His utility function he doesn't run into Dick is $22s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim doesn't run into him is $10w + m_D$. The probability and severity of an accident depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident to each of them is $s^2 + w^2$. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 11$ and $w = 10$

(b) $s = 11$ and $w = 5$

(c) $s = 22$ and $w = 10$

(d) $s = 16$ and $w = 5$

(e) $s = 5.50$ and $w = 2.50$

Topic: Law and Economics   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

33.1D   Madame N. gets a total payment of $6 \log x$ if she delivers x stolen buttons to her "fence". She has to pay a fine of $\$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame Noriega to taking 6 buttons?

(a) $5

(b) $100

(c) $14

(d) $10

(e) $15

Topic: Law and Economics   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

33.2D   Jim rides his trailbike through the woods at speed s and has money m_J. His utility function he doesn't run into Dick is $24s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim doesn't run into him is $8w + m_D$. The probability and severity of an accident depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident to each of them is $s^2 + w^2$. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 12$ and $w = 8$

(b) $s = 12$ and $w = 4$

(c) $s = 24$ and $w = 8$

(d) $s = 16$ and $w = 4$

(e) $s = 6$ and $w = 2$

Multiple Choice   # Law and Economics

33.1E   Madame N. gets a total payment of \$12 log x if she delivers x stolen buttons to her "fence". She has to pay a fine of \$$F$ if she is caught, but there is no other cost of getting caught. How big should the fine be if we want to limit Madame Noriega to taking 6 buttons?

(a) \$10

(b) \$200

(c) \$24

(d) \$20

(e) \$30

33.2E   Jim rides his trailbike through the woods at speed s and has money m_J. His utility function he doesn't run into Dick is $12s + m_J$. Dick walks at speed w and has money m_D; his utility function if Jim doesn't run into him is $8w + m_D$. The probability and severity of an accident depends on both their speeds. In fact, if Jim rides at speed s and Dick walks at speed w, the probability of an accident times the cost of an accident to each of them is $s^2 + w^2$. If there are no rules about liability and no deals are made between Jim and Dick, how fast will they travel?

(a) $s = 6$ and $w = 8$

(b) $s = 6$ and $w = 4$

(c) $s = 12$ and $w = 8$

(d) $s = 10$ and $w = 4$

(e) $s = 3$ and $w = 2$

Chapter 34

Multiple Choice   Information Technology

34.1A   If the demand function for the DoorKnobs operating system is related to perceived market share s and actual market share x by the equation $p = 512s(1 - x)$, then in the long run, the highest price at which DoorKnobs could sustain a market share of 1/2 is

(a) $256.

(b) $128.

(c) $113.78.

(d) $96.

(e) $81.92.

34.2A   Eleven consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 is of type 2, consumer 3 is of type 3, and so on. Where k is the number of consumers connected to the network (including oneself), a consumer of type n has a willingness to pay to belong to this network equal to k times n. What is the highest price at which 5 consumers could all connect to the network and either make a profit or at least break even?

(a) $28

(b) $49

(c) $42

(d) $30

(e) $35

34.3A   Professor Kremepuff's new, user-friendly textbook has just been published. This book will be used in classes for two years, after which it will be replaced by a new edition. The publisher charges a price of p_1 in the first year and p_2 in the second year. After the first year, bookstores buy back used copies for $p_2/2$ and resell them to students in the second year for p_2. (Students are indifferent between new and used copies.) The cost to a student of owning the book during the first year is therefore $p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay \$$v$ to own a copy of the book for a year is $80,000 - 1,000v$. The number of student taking the course in the first year who are willing to pay \$$w$ to keep the book for reference rather than sell it at the end of the year is $80,000 - 5,000w$. The number of persons who are taking the course in the second year and are willing to pay at least \$$p$ for a copy of the book is $60,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and $p_2 <= p_1$ in the second year, then the total number of copies of the book that the publisher sells over the two years will be

(a) $160,000 - 1,000p_1 - 1,000p_2$.

(b) $160,000 - 1,000(p_1 - (p_2/2))$.

(c) $160,000 - 3,000p_2$.

(d) $140,000 - 1,000(p_1 + (p_2/2))$.

(e) $140,000 - 1,500p_2$.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

34.1B   If the demand function for the DoorKnobs operating system is related to perceived market share s and actual market share x by the equation $p = 512s(1-x)$, then in the long run, the highest price at which DoorKnobs could sustain a market share of 1/2 is

(a) $256.

(b) $128.

(c) $113.78.

(d) $96.

(e) $81.92.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: E

34.2B   Eleven consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 is of type 2, consumer 3 is of type 3, and so on. Where k is the number of consumers connected to the network (including oneself), a consumer of type n has a willingness to pay to belong to this network equal to k times n. What is the highest price at which 6 consumers could all connect to the network and either make a profit or at least break even?

(a) $30

(b) $36

(c) $42

(d) $30

(e) $36

34.3B   Professor Kremepuff's new, user-friendly textbook has just been published. This book will be used in classes for two years, after which it will be replaced by a new edition. The publisher charges a price of p_1 in the first year and p_2 in the second year. After the first year, bookstores buy back used copies for $p_2/2$ and resell them to students in the second year for p_2. (Students are indifferent between new and used copies.) The cost to a student of owning the book during the first year is therefore $p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay v to own a copy of the book for a year is $70,000 - 2,500v$. The number of student taking the course in the first year who are willing to pay w to keep the book for reference rather than sell it at the end of the year is $70,000 - 12,500w$. The number of persons who are taking the course in the second year and are willing to pay at least p for a copy of the book is $65,000 - 2,500p$. If the publisher sets a price of p_1 in the first year and $p_2 <= p_1$ in the second year, then the total number of copies of the book that the publisher sells over the two years will be

(a) $140,000 - 2,500p_1 - 2,500p_2$.

(b) $140,000 - 2,500(p_1 - (p_2/2))$.

(c) $140,000 - 7,500p_2$.

(d) $135,000 - 2,500(p_1 + (p_2/2))$.

(e) $135,000 - 3,750p_2$.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

34.1C   If the demand function for the DoorKnobs operating system is related to perceived market share s and actual market share x by the equation $p = 512s(1-x)$, then in the long run, the highest price at which DoorKnobs could sustain a market share of 4/5 is

(a) $256.

(b) $128.

(c) $113.78.

(d) $96.

(e) $81.92.

Topic: Information Technology   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: E

34.2C   Eleven consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 is of type 2, consumer 3 is of type 3, and so on. Where k is the number of consumers connected to the network (including oneself), a consumer of type n has a willingness to pay to belong to this network equal to k times n. What is the highest price at which 5 consumers could all connect to the network and either make a profit or at least break even?

(a) $28

(b) $49

(c) $42

(d) $30

(e) $35

34.3C   Professor Kremepuff's new, user-friendly textbook has just been published. This book will be used in classes for two years, after which it will be replaced by a new edition. The publisher charges a price of p_1 in the first year and p_2 in the second year. After the first year, bookstores buy back used copies for $p_2/2$ and resell them to students in the second year for p_2. (Students are indifferent between new and used copies.) The cost to a student of owning the book during the first year is therefore $p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay \$$v$ to own a copy of the book for a year is $50,000 - 2,000v$. The number of student taking the course in the first year who are willing to pay \$$w$ to keep the book for reference rather than sell it at the end of the year is $50,000 - 10,000w$. The number of persons who are taking the course in the second year and are willing to pay at least \$$p$ for a copy of the book is $40,000 - 2,000p$. If the publisher sets a price of p_1 in the first year and $p_2 <= p_1$ in the second year, then the total number of copies of the book that the publisher sells over the two years will be

(a) $100,000 - 2,000p_1 - 2,000p_2$.

(b) $100,000 - 2,000(p_1 - (p_2/2))$.

(c) $100,000 - 6,000p_2$.

(d) $90,000 - 2,000(p_1 + (p_2/2))$.

(e) $90,000 - 3,000p_2$.

Multiple Choice   Information Technology

34.1D   If the demand function for the DoorKnobs operating system is related to perceived market share s and actual market share x by the equation $p = 512s(1-x)$, then in the long run, the highest price at which DoorKnobs could sustain a market share of 4/5 is

(a) $256.

(b) $128.

(c) $113.78.

(d) $96.

(e) $81.92.

34.2D   Eleven consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 is of type 2, consumer 3 is of type 3, and so on. Where k is the number of consumers connected to the network (including oneself), a consumer of type n has a willingness to pay to belong to this network equal to k times n. What is the highest price at which 9 consumers could all connect to the network and either make a profit or at least break even?

(a) $24

(b) $9

(c) $30

(d) $18

(e) $27

Topic: Information Technology Difficulty: 0

% Correct Responses: 0 Discrimination Index: 0

Correct Answer: D

34.3D Professor Kremepuff's new, user-friendly textbook has just been published. This book will be used in classes for two years, after which it will be replaced by a new edition. The publisher charges a price of p_1 in the first year and p_2 in the second year. After the first year, bookstores buy back used copies for $p_2/2$ and resell them to students in the second year for p_2. (Students are indifferent between new and used copies.) The cost to a student of owning the book during the first year is therefore $p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay \$$v$ to own a copy of the book for a year is $70,000 - 1,000v$. The number of student taking the course in the first year who are willing to pay \$$w$ to keep the book for reference rather than sell it at the end of the year is $70,000 - 5,000w$. The number of persons who are taking the course in the second year and are willing to pay at least \$$p$ for a copy of the book is $55,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and $p_2 <= p_1$ in the second year, then the total number of copies of the book that the publisher sells over the two years will be

(a) $140,000 - 1,000p_1 - 1,000p_2$.

(b) $140,000 - 1,000(p_1 - (p_2/2))$.

(c) $140,000 - 3,000p_2$.

(d) $125,000 - 1,000(p_1 + (p_2/2))$.

(e) $125,000 - 1,500p_2$.

Topic: Information Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: B

34.1E If the demand function for the DoorKnobs operating system is related to perceived market share s and actual market share x by the equation $p = 512s(1 - x)$, then in the long run, the highest price at which DoorKnobs could sustain a market share of 2/3 is

(a) \$256.

(b) \$128.

(c) \$113.78.

(d) \$96.

(e) \$81.92.

Topic: Information Technology   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: E

34.2E Eleven consumers are trying to decide whether to connect to a new communications network. Consumer 1 is of type 1, consumer 2 is of type 2, consumer 3 is of type 3, and so on. Where k is the number of consumers connected to the network (including oneself), a consumer of type n has a willingness to pay to belong to this network equal to k times n. What is the highest price at which 7 consumers could all connect to the network and either make a profit or at least break even?

(a) \$30

(b) \$25

(c) \$40

(d) \$28

(e) \$35

Topic: Information Technology

Difficulty: 0

% Correct Responses: 0

Discrimination Index: 0

Correct Answer: D

34.3E   Professor Kremepuff's new, user-friendly textbook has just been published. This book will be used in classes for two years, after which it will be replaced by a new edition. The publisher charges a price of p_1 in the first year and p_2 in the second year. After the first year, bookstores buy back used copies for $p_2/2$ and resell them to students in the second year for p_2. (Students are indifferent between new and used copies.) The cost to a student of owning the book during the first year is therefore $p_1 - (p_2/2)$. In the first year of publication, the number of students willing to pay \$$v$ to own a copy of the book for a year is $80,000 - 1,000v$. The number of student taking the course in the first year who are willing to pay \$$w$ to keep the book for reference rather than sell it at the end of the year is $80,000 - 5,000w$. The number of persons who are taking the course in the second year and are willing to pay at least \$$p$ for a copy of the book is $60,000 - 1,000p$. If the publisher sets a price of p_1 in the first year and $p_2 <= p_1$ in the second year, then the total number of copies of the book that the publisher sells over the two years will be

(a) $160,000 - 1,000p_1 - 1,000p_2$.

(b) $160,000 - 1,000(p_1 - (p_2/2))$.

(c) $160,000 - 3,000p_2$.

(d) $140,000 - 1,000(p_1 + (p_2/2))$.

(e) $140,000 - 1,500p_2$.

Chapter 35

Multiple Choice   Public Goods

35.1A   Just north of the town of Muskrat, Ontario, in Problem 35.1, is the town of Brass Monkey, population 8,000. Brass Monkey, like Muskrat, has a single public good, the town skating rink and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 81/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is \$1 per bottle. The cost of the skating rink to the city is \$5 per square meter. Everyone has an income of at least \$5,000. What is the Pareto efficient size for the town skating rink?

(a) 360 square meters.

(b) 480 square meters.

(c) 240 square meters.

(d) 725 square meters.

(e) None of the other options are correct.

35.2A   Recall Bob and Ray in Problem 35.4. They are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1 + S)M_B$ and Ray's utility function is $U_R(S, M_R) = (3 + S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of \$1,200 to spend on the sofa and other stuff. Ray has a total of \$ 1,600 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 1,500

(b) 533.33

(c) 550

(d) 1,000

(e) 2,000

35.3A   Recall Bonnie and Clyde from Problem 35.5. Suppose that their total profits are $100H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.04H^2$, and $U_C(C_C, H) = C_C - 0.01H^2$, where C_B and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 1,100

(b) 1,500

(c) 1,000

(d) 450

(e) 550

35.4A   Recall Lucy and Melvin from Problem 35.6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 36,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 6,000. How much do they spent on public goods?

(a) 10,000

(b) 20,000

(c) 8,050

(d) 5,000

(e) There is not enough information here to be able to determine the answer.

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

35.1B   Just north of the town of Muskrat, Ontario, in Problem 35.1, is the town of Brass Monkey, population 3,200. Brass Monkey, like Muskrat, has a single public good, the town skating rink and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 81/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is \$1 per bottle. The cost of the skating rink to the city is \$8 per square meter. Everyone has an income of at least \$5,000. What is the Pareto efficient size for the town skating rink?

(a) 180 square meters.

(b) 300 square meters.

(c) 150 square meters.

(d) 365 square meters.

(e) None of the other options are correct.

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

35.2B   Recall Bob and Ray in Problem 35.4. They are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1+S)M_B$ and Ray's utility function is $U_R(S, M_R) = (4+S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of \$1,600 to spend on the sofa and other stuff. Ray has a total of \$ 2,000 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 1,800

(b) 500

(c) 650

(d) 1,200

(e) 2,400

35.3B   Recall Bonnie and Clyde from Problem 35.5. Suppose that their total profits are $24H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.01H^2$, and $U_C(C_C, H) = C_C - 0.02H^2$, where C_B and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 500

(b) 600

(c) 400

(d) 150

(e) 250

35.4B   Recall Lucy and Melvin from Problem 35.6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 35,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 8,000. How much do they spent on public goods?

(a) 9,000

(b) 18,000

(c) 8,550

(d) 4,500

(e) There is not enough information here to be able to determine the answer.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

35.1C   Just north of the town of Muskrat, Ontario, in Problem 35.1, is the town of Brass Monkey, population 12,800. Brass Monkey, like Muskrat, has a single public good, the town skating rink and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 121/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is $1 per bottle. The cost of the skating rink to the city is $8 per square meter. Everyone has an income of at least $5,000. What is the Pareto efficient size for the town skating rink?

(a) 440 square meters.

(b) 560 square meters.

(c) 280 square meters.

(d) 885 square meters.

(e) None of the other options are correct.

Topic: Public Goods   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

35.2C   Recall Bob and Ray in Problem 35.4. They are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1+S)M_B$ and Ray's utility function is $U_R(S, M_R) = (3+S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of $1,600 to spend on the sofa and other stuff. Ray has a total of $ 2,400 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 2,100

(b) 800

(c) 750

(d) 1,400

(e) 2,800

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

35.3C   Recall Bonnie and Clyde from Problem 35.5. Suppose that their total profits are $80H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.03H^2$, and $U_C(C_C, H) = C_C - 0.02H^2$, where C_B and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 900

(b) 1,200

(c) 800

(d) 350

(e) 450

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

35.4C   Recall Lucy and Melvin from Problem 35.6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 29,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 8,000. How much do they spent on public goods?

(a) 7,000

(b) 14,000

(c) 7,550

(d) 3,500

(e) There is not enough information here to be able to determine the answer.

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

35.1D   Just north of the town of Muskrat, Ontario, in Problem 35.1, is the town of Brass Monkey, population 2,400. Brass Monkey, like Muskrat, has a single public good, the town skating rink and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 144/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is \$1 per bottle. The cost of the skating rink to the city is \$6 per square meter. Everyone has an income of at least \$5,000. What is the Pareto efficient size for the town skating rink?

(a) 240 square meters.

(b) 360 square meters.

(c) 180 square meters.

(d) 485 square meters.

(e) None of the other options are correct.

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

35.2D   Recall Bob and Ray in Problem 35.4. They are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1+S)M_B$ and Ray's utility function is $U_R(S, M_R) = (2+S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of \$1,600 to spend on the sofa and other stuff. Ray has a total of \$ 1,800 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 2,100

(b) 900

(c) 750

(d) 1,400

(e) 2,800

35.3D   Recall Bonnie and Clyde from Problem 35.5. Suppose that their total profits are $100H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.02H^2$, and $U_C(C_C, H) = C_C - 0.03H^2$, where C_B and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 1,100

(b) 1,500

(c) 1,000

(d) 450

(e) 550

35.4D   Recall Lucy and Melvin from Problem 35.6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 23,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 8,000. How much do they spent on public goods?

(a) 5,000

(b) 10,000

(c) 6,550

(d) 2,500

(e) There is not enough information here to be able to determine the answer.

Multiple Choice   Public Goods

35.1E Just north of the town of Muskrat, Ontario, in Problem 35.1, is the town of Brass Monkey, population 3,200. Brass Monkey, like Muskrat, has a single public good, the town skating rink and a single private good, Labatts ale. Everyone's utility function is $U_i(X_i, Y) = X_i - 121/Y$, where X_i is the number of bottles of ale consumed by i and Y is the size of the skating rink in square meters. The price of ale is $1 per bottle. The cost of the skating rink to the city is $8 per square meter. Everyone has an income of at least $5,000. What is the Pareto efficient size for the town skating rink?

(a) 220 square meters.

(b) 340 square meters.

(c) 170 square meters.

(d) 445 square meters.

(e) None of the other options are correct.

35.2E Recall Bob and Ray in Problem 35.4. They are thinking of buying a sofa. Bob's utility function is $U_B(S, M_B) = (1+S)M_B$ and Ray's utility function is $U_R(S, M_R) = (4+S)M_R$, where $S = 0$ if they don't get the sofa and $S = 1$ if they do and where M_B and M_R are the amounts of money they have respectively to spend on their private consumptions. Bob has a total of $1,600 to spend on the sofa and other stuff. Ray has a total of $ 4,000 to spend on the sofa and other stuff. The maximum amount that they could pay for the sofa and still arrange to both be better off than without it is:

(a) 2,400

(b) 1,000

(c) 850

(d) 1,600

(e) 3,200

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

35.3E   Recall Bonnie and Clyde from Problem 35.5. Suppose that their total profits are $24H$ where H is the number of hours they work per year. Their utility functions are, respectively, $U_B(C_B, H) = C_B - 0.02H^2$, and $U_C(C_C, H) = C_C - 0.01H^2$, where C_B and C_C are their private goods consumptions and H is the number of hours they work per year. If they find a Pareto optimal choice of hours of work and income distribution, it must be that the number of hours they work per year is:

(a) 500

(b) 600

(c) 400

(d) 150

(e) 250

Topic: Public Goods   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: B

35.4E   Recall Lucy and Melvin from Problem 35.6. Lucy's utility function is $2X_L + G$ and Melvin's utility function is $X_M G$ where G is their expenditures on the public goods they share in their apartment and where X_L and X_M are their respective private consumption expenditures. The total amount they have to spend on private goods and public goods is 22,000. They agree on a Pareto optimal pattern of expenditures in which the amount that is spent on Lucy's private consumption is 7,000. How much do they spent on public goods?

(a) 5,000

(b) 10,000

(c) 6,050

(d) 2,500

(e) There is not enough information here to be able to determine the answer.

Chapter 36

<table>
<tr><td>*Multiple Choice*</td><td>Asymmetric Information</td></tr>
</table>

Topic: Information
% Correct Responses: 0
Correct Answer: C

Difficulty: 0
Discrimination Index: 0

36.1A   Suppose that low-productivity workers all have marginal products of 10 and high productivity workers have marginal products of 12. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High-productivity workers think taking this course is as bad a wage cut of 4 and low-productivity workers think it is as bad as a wage cut 8.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 12 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 11.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 12 and low productivity workers are paid 11.

Topic: Information
% Correct Responses: 0
Correct Answer: A

Difficulty: 0
Discrimination Index: 0

36.2A   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $3,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $150 for a Klutz and $100 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 3,000 per month and anybody who does not is paid $1000 per month

(a) if $H < 20$ and $H > 13.33$

(b) if $H < 40$ and $H > 13.33$

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 15$ and $H > 10$

36.3A   In Rustbucket, Mi there are 200 used cars for sale, half of them are good and half of them are lemons. Owners of lemons are willing to sell them for $500. Owners of good used cars are willing to sell them for prices above $900 but will keep them if the price is lower than $900. There is a large number of potential buyers who are willing to pay $700 for a lemon and $1,900 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $ 1,300.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for 700.

(c) There will be an equilibrium in which lemons sell for 500 and good used cars sell for 900.

(d) There will be an equilibrium in which all used cars sell for 700.

(e) There will be an equilibrium in which lemons sell for 700 and good used cars sell for 1,900.

36.4A   Suppose that in New Crankshaft, Pa the quality distribution of the 4,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they it. An owner can either take his car to an appraiser and pay the appraiser $400 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least

(a) 400

(b) 2,000

(c) 1,200

(d) 800

(e) 1,600

Multiple Choice   Asymmetric Information

36.1B   Suppose that low-productivity workers all have marginal products of 10 and high productivity workers have marginal products of 16. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High-productivity workers think taking this course is as bad a wage cut of 2 and low-productivity workers think it is as bad as a wage cut 7.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 13.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 18 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low productivity workers are paid 13.

36.2B   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $4,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $100 for a Klutz and $50 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 4,000 per month and anybody who does not is paid $1000 per month

(a) if $H < 60$ and $H > 30$

(b) if $H < 120$ and $H > 30$

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 50$ and $H > 25$

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.3B   In Rustbucket, Mi there are 200 used cars for sale, half of them are good and half of them are lemons. Owners of lemons are willing to sell them for \$100. Owners of good used cars are willing to sell them for prices above \$1,300 but will keep them if the price is lower than \$1,300. There is a large number of potential buyers who are willing to pay \$400 for a lemon and \$1,700 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for \$ 1,050.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for 400.

(c) There will be an equilibrium in which lemons sell for 100 and good used cars sell for 1,300.

(d) There will be an equilibrium in which all used cars sell for 700.

(e) There will be an equilibrium in which lemons sell for 400 and good used cars sell for 1,700.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

36.4B   Suppose that in New Crankshaft, Pa the quality distribution of the 2,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they it. An owner can either take his car to an appraiser and pay the appraiser \$500 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least

(a) 500

(b) 1,000

(c) 1,500

(d) 1,000

(e) 2,000

Topic: Information   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: C

36.1C   Suppose that low-productivity workers all have marginal products of 10 and high productivity workers have marginal products of 16. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High-productivity workers think taking this course is as bad a wage cut of 2 and low-productivity workers think it is as bad as a wage cut 5.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 13.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 18 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low productivity workers are paid 13.

Topic: Information   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

36.2C   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $3,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $150 for a Klutz and $50 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 3,000 per month and anybody who does not is paid $1000 per month

(a) if $H < 40$ and $H > 13.33$

(b) if $H < 80$ and $H > 13.33$

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 30$ and $H > 10$

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.3C   In Rustbucket, Mi there are 200 used cars for sale, half of them are good and half of them are lemons. Owners of lemons are willing to sell them for $200. Owners of good used cars are willing to sell them for prices above $1,300 but will keep them if the price is lower than $1,300. There is a large number of potential buyers who are willing to pay $500 for a lemon and $2,300 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $ 1,400.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for 500.

(c) There will be an equilibrium in which lemons sell for 200 and good used cars sell for 1,300.

(d) There will be an equilibrium in which all used cars sell for 750.

(e) There will be an equilibrium in which lemons sell for 500 and good used cars sell for 2,300.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

36.4C   Suppose that in New Crankshaft, Pa the quality distribution of the 7,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they it. An owner can either take his car to an appraiser and pay the appraiser $100 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least

(a) 100

(b) 3,500

(c) 300

(d) 200

(e) 400

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

36.1D   Suppose that low-productivity workers all have marginal products of 10 and high productivity workers have marginal products of 14. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High-productivity workers think taking this course is as bad a wage cut of 5 and low-productivity workers think it is as bad as a wage cut 10.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 14 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 12.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 19 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 14 and low productivity workers are paid 12.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.2D   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $4,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $250 for a Klutz and $150 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 4,000 per month and anybody who does not is paid $1000 per month

(a) if $H < 20$ and $H > 12$

(b) if $H < 40$ and $H > 12$

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 16.67$ and $H > 10$

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.3D In Rustbucket, Mi there are 200 used cars for sale, half of them are good and half of them are lemons. Owners of lemons are willing to sell them for $100. Owners of good used cars are willing to sell them for prices above $1,100 but will keep them if the price is lower than $1,100. There is a large number of potential buyers who are willing to pay $200 for a lemon and $1,700 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $ 950.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for 200.

(c) There will be an equilibrium in which lemons sell for 100 and good used cars sell for 1,100.

(d) There will be an equilibrium in which all used cars sell for 600.

(e) There will be an equilibrium in which lemons sell for 200 and good used cars sell for 1,700.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: D

36.4D Suppose that in New Crankshaft, Pa the quality distribution of the 6,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they it. An owner can either take his car to an appraiser and pay the appraiser $300 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least

(a) 300

(b) 3,000

(c) 900

(d) 600

(e) 1,200

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: C

36.1E   Suppose that low-productivity workers all have marginal products of 10 and high productivity workers have marginal products of 16. The community has equal numbers of each type of worker. The local community college offers a course in microeconomics. High-productivity workers think taking this course is as bad a wage cut of 2 and low-productivity workers think it is as bad as a wage cut 7.

(a) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low-productivity workers do not take the course and are paid 10.

(b) There is no separating equilibrium and no pooling equilibrium.

(c) There is no separating equilibrium, but there is a pooling equilibrium in which everybody is paid 13.

(d) There is a separating equilibrium in which high-productivity workers take the course and are paid 18 and low productivity workers do not take the course and are paid 10.

(e) There is a separating equilibrium in which high-productivity workers take the course and are paid 16 and low productivity workers are paid 13.

Topic: Information   Difficulty: 0
% Correct Responses: 0   Discrimination Index: 0
Correct Answer: A

36.2E   Suppose that in Enigma, Ohio, Klutzes have productivity of $1000 and Kandos have productivity of $4,000 per month. You can't tell Klutzes from Kandos by looking at them or asking them and it is too expensive to monitor individual productivity. Kandos, however, have more patience than Klutzes. Listening to an hour of dull lectures is as bad losing $200 for a Klutz and $150 for a Kando. There will be a separating equilibrium in which anybody who attends a course of H hours of lectures is paid 4,000 per month and anybody who does not is paid $1000 per month

(a) if $H < 20$ and $H > 15$

(b) if $H < 40$ and $H > 15$

(c) for all positive values of H.

(d) only in the limit as H approaches infinity.

(e) if $H < 16.67$ and $H > 12.50$

Topic: Information   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: A

36.3E   In Rustbucket, Mi there are 200 used cars for sale, half of them are good and half of them are lemons. Owners of lemons are willing to sell them for $300. Owners of good used cars are willing to sell them for prices above $900 but will keep them if the price is lower than $900. There is a large number of potential buyers who are willing to pay $500 for a lemon and $1,500 for a good car. Buyers can't tell good cars from bad, but original owners know.

(a) There will be an equilibrium in which all used cars sell for $ 1,000.

(b) The only equilibrium is one in which all used cars on the market are lemons and they sell for 500.

(c) There will be an equilibrium in which lemons sell for 300 and good used cars sell for 900.

(d) There will be an equilibrium in which all used cars sell for 600.

(e) There will be an equilibrium in which lemons sell for 500 and good used cars sell for 1,500.

Topic: Information   Difficulty: 0

% Correct Responses: 0   Discrimination Index: 0

Correct Answer: D

36.4E   Suppose that in New Crankshaft, Pa the quality distribution of the 6,000 used cars on the market is such that the number of used cars of value less than V is $V/2$. Original owners must sell their used cars. Original owners know what their cars are worth, but buyers can't determine a car's quality until they it. An owner can either take his car to an appraiser and pay the appraiser $400 to appraise the car (accurately and credibly) or he can sell the car unappraised. In equilibrium, car owners will have their cars appraised if and only if their value is at least

(a) 400

(b) 3,000

(c) 1,200

(d) 800

(e) 1,600