Quiz 2

Budget Constraint

NAME_____

2.1 In Problem 2.1, if you have an income of \$12 to spend, if commodity 1 costs \$2 per unit, and if commodity 2 costs \$6 per unit, then the equation for your budget line can be written as

(a) $x_1/2 + x_2/6 = 12$.

(b) $(x_1 + x_2)/8 = 12$.

(c) $x_1 + 3x_2 = 6$.

(d) $3x_1 + 7x_2 = 13$.

(e) $8(x_1 + x_2) = 12$.

2.2 In Problem 2.3, if you could exactly afford either 6 units of x and 14 units of y, or 10 units of x and 6 units of y, then if you spent all of your income on y, how many units of y could you buy?

(a) 26

(b) 18

(c) 34

(d) 16

(e) None of the other options are correct.

2.3 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 8, how much would Murphy's income have to rise so that he could still afford his original bundle?

(a) 700.

(b) 500.

(c) 350.

(d) 1,050.

(e) None of the other options are correct.

2.4 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 \$384, then his budget line is described by the equation:

(a) $6V = 48G$.

(b) $6V + 48G = 384$.

(c) $6V - 48G = 384$.

(d) $6V = 384 - G$.

(e) None of the other options are correct.

2.5 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 30 pages of economics and 50 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) $E + S = 80$.

(e) All of the above.

2.6 In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 MBAs. Ads in the consumer publication are read by 250 lawyers and 300 MBAs. If Harry had \$3,000 to spend on advertising, if the price of ads in the boring business magazine were \$600, and if the price of ads in the consumer magazine were \$300, then the combinations of recent MBAs 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).

(e) None of the other options are correct.

2.4 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 \$384, then his budget line is described by the equation:

(a) $6V = 48G$.

(b) $6V + 48G = 384$.

(c) $6V - 48G = 384$.

(d) $6V = 384 - G$.

(e) None of the other options are correct.

2.5 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 30 pages of economics and 50 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) $E + S = 80$.

(e) All of the above.

2.6 In Problem 2.11, ads in the boring business magazine are read by 300 lawyers and 1,000 MBAs. Ads in the consumer publication are read by 250 lawyers and 300 MBAs. If Harry had \$3,000 to spend on advertising, if the price of ads in the boring business magazine were \$600, and if the price of ads in the consumer magazine were \$300, then the combinations of recent MBAs 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).

2.7 In the economy of Mungo, discussed in Problem 2.12, there is a third creature 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 bubble gum. Red prices are 2 rcus [red currency units] per unit of ambrosia and 6 rcus per unit of bubble gum. You have to pay twice for what you buy, once in red currency and once in blue currency.) If Ike spends all of its blue income, but not all of its red income, then it must be that it consumes

(a) at least 5 units of bubble gum.

(b) at least 5 units of ambrosia.

(c) exactly twice as much bubble gum as ambrosia.

(d) at least 15 units of bubble gum.

(e) equal amounts of ambrosia and bubble gum.

Quiz 3

Preferences

NAME_____

3.1 In Problem 3.1, Charlie's indifference curves have the equation $x_B = \text{constant}/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle (7,15) to the bundle:

(a) (15,7).

(b) (8,14).

(c) (11,11).

(d) all three of these bundles.

(e) none of these bundles.

3.2 In Problem 3.2, Ambrose has indifference curves with the equation $x_2 = \text{constant} - 4x_1^{1/2}$, 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

(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.

3.4 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 34 avocados and

(a) 28 grapefruits.

(b) 32 grapefruits.

(c) 22 grapefruits.

(d) 25 grapefruits.

(e) 26.50 grapefruits.

3.5 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

(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.

3.4 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 34 avocados and

(a) 28 grapefruits.

(b) 32 grapefruits.

(c) 22 grapefruits.

(d) 25 grapefruits.

(e) 26.50 grapefruits.

3.5 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) 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 other options are correct.

3.6 In Problem 3.1, Charlie's indifference curves have the equation $x_B = \text{constant}/x_A$, where larger constants correspond to better indifference curves. Charlie strictly prefers the bundle (9,19) to the bundle:

(a) (19,9).

(b) (10,18).

(c) (15,17).

(d) More than one of these options are correct.

(e) None of the above are correct.

Quiz 4

Utility

NAME_____

4.1 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 30 bananas will also pass through the point where he consumes 2 apples and

(a) 25 bananas.

(b) 50 bananas.

(c) 152 bananas.

(d) 158 bananas.

(e) 150 bananas.

4.2 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 100 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) -20.

(b) -5.

(c) -10.

(d) $-1/5$.

(e) $-1/10$.

4.3 In Problem 4.2, Ambrose has the utility function $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If Ambrose is initially consuming 81 units of nuts and 14 units of berries, then what is the largest number of units of berries that he would be willing to give up in return for an additional 40 units of nuts?

(a) 11

(b) 25

(c) 8

(d) 4

(e) 2

4.4 Joe Bob from Problem 4.12 has a cousin Jonas who consume goods 1 and 2. Jonas 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 Jonas's preferences?

(a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1,000.$

(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 Jonas's preferences.

4.5 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 5 dollars 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 many units of corn chips as of french fries, but might consume both.

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

(e) consume an equal number of units of french fries and corn chips.

4.6 Phil Rupp's sister Ethel 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 consist of

(a) a vertical line segment and a horizontal line segment that meet in a kink along the line $y = 2x$.

(b) a vertical line segment and a horizontal line segment that meet in a kink along the line $x = 2y$.

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

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

(e) a horizontal line segment and a positively sloped line segment that meet in a kink along the line $x = 2y$.

(d) 4

(e) 2

4.4 Joe Bob from Problem 4.12 has a cousin Jonas who consume goods 1 and 2. Jonas 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 Jonas's preferences?

(a) $U(x_1, x_2) = 3x_1 + 2x_2 + 1,000$.

(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 Jonas's preferences.

4.5 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 5 dollars 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 many units of corn chips as of french fries, but might consume both.

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

(e) consume an equal number of units of french fries and corn chips.

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(a) a vertical line segment and a horizontal line segment that meet in a kink along the line $y = 2x$.

(b) a vertical line segment and a horizontal line segment that meet in a kink along the line $x = 2y$.

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

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

(e) a horizontal line segment and a positively sloped line segment that meet in a kink along the line $x = 2y$.

Quiz 5

NAME_____

Choice

5.1 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 chose the bundle that maximized his utility subject to his budget constraint?

(a) 60

(b) 30

(c) 120

(d) 12

(e) 180

5.2 In Problem 5.1, if Charlie's income is 40, the price of apples is 5, and the price of bananas is 6, how many apples are contained in the best bundle that Charlie can afford?

(a) 8

(b) 15

(c) 10

(d) 11

(e) 4

5.3 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

5.4 In Problem 5.3, Ambrose's utility function is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts is 1, the price of berries is 4, and his income is 72, how many units of nuts will Ambrose choose?

(a) 2

(b) 64

(c) 128

(d) 67

(e) 32

5.5 Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts is 1, the price of berries is 4, and his income is 100, how many units of berries will Ambrose choose?

(a) 65

(b) 9

(c) 18

(d) 8

(e) 12

5.6 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 7 units of y, what must Elmer's income be?

(a) 1,610

(b) 175

(c) 905

(d) 805

(e) There is not enough information to tell.

(e) 5

5.4 In Problem 5.3, Ambrose's utility function is $U(x_1, x_2) = 4x_1^{1/2} + x_2$. If the price of nuts is 1, the price of berries is 4, and his income is 72, how many units of nuts will Ambrose choose?

(a) 2

(b) 64

(c) 128

(d) 67

(e) 32

5.5 Ambrose's utility function is $4x_1^{1/2} + x_2$. If the price of nuts is 1, the price of berries is 4, and his income is 100, how many units of berries will Ambrose choose?

(a) 65

(b) 9

(c) 18

(d) 8

(e) 12

5.6 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 7 units of y, what must Elmer's income be?

(a) 1,610

(b) 175

(c) 905

(d) 805

(e) There is not enough information to tell.

Quiz 6

Demand

NAME_____

6.1 (See Problem 6.1.) If Charlie's utility function is $X_A^4 X_B$, apples cost 90 cents each, and bananas cost 10 cents each, then Charlie's budget line is tangent to one of his indifference curves whenever the following equation is satisfied:

(a) $4X_B = 9X_A$.

(b) $X_B = X_A$.

(c) $X_A = 4X_B$.

(d) $X_B = 4X_A$.

(e) $90X_A + 10X_B = M$.

6.2 (See Problem 6.1.) If Charlie's utility function is $X_A^4 X_B$, 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 is

(a) $m/(2p_A)$.

(b) $0.25p_A m$.

(c) $m/(p_A + p_B)$.

(d) $0.80m/p_A$.

(e) $1.25p_B m/p_A$.

6.3 Ambrose's brother Bartholomew has a utility function $U(x_1, x_2) = 24x_1^{1/2} + x_2$. His income is 51, 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) 19

(b) 5

(c) 7

(d) 9

(e) 16

6.4 Ambrose's brother Bartholomew has a utility function $U(x_1, x_2) = 8x_1^{1/2} + x_2$. His income is 23, the price of nuts is 2, and the price of berries is 1. How many units of berries will Bartholomew demand?

(a) 15

(b) 4

(c) 30

(d) 10

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

6.5 In Problem 6.6, recall that 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) $m/15$.

6.6 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, the price of a unit of cheese is \$8, and Casper's income is \$174, how many units of cocoa will he consume?

(a) 9

(b) 12

(c) 23

(d) 11

(e) 24

6.7 (See Problem 6.13.) Kinko's utility function is $U(w, j) = \min\{7w, 3w + 12j\}$, where w is the number of whips that he owns and j is the number of leather jackets. If the price of whips is \$20 and the price of leather jackets is \$60, Kinko will demand:

(e) 16

6.4 Ambrose's brother Bartholomew has a utility function $U(x_1, x_2) = 8x_1^{1/2} + x_2$. His income is 23, the price of nuts is 2, and the price of berries is 1. How many units of berries will Bartholomew demand?

(a) 15

(b) 4

(c) 30

(d) 10

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

6.5 In Problem 6.6, recall that 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) $m/15$.

6.6 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, the price of a unit of cheese is \$8, and Casper's income is \$174, how many units of cocoa will he consume?

(a) 9

(b) 12

(c) 23

(d) 11

(e) 24

6.7 (See Problem 6.13.) Kinko's utility function is $U(w, j) = \min\{7w, 3w + 12j\}$, where w is the number of whips that he owns and j is the number of leather jackets. If the price of whips is \$20 and the price of leather jackets is \$60, 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 leather jackets as whips.

(e) only leather jackets.

Quiz 7

NAME_____

Revealed Preference

7.1 In Problem 7.1, if the only information we had about Goldie were that she chooses the bundle (6,6) when prices are (6,3) 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 no evidence that she violates WARP.

7.2 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 6 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) Henri is better off than Bob.

(c) Bob is better off than Henri.

(d) both of them violate the weak axiom of revealed preferences.

(e) Bob and Henri are equally well off.

7.3 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 10 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) 1.83

(c) 1

(d) 0.75

(e) 2.50

7.4 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. On this planet 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 2000, the price of good 1 was 5 fragels and the price of good 2 was 5 fragels. The Laspeyres price index for the price level in 2000 relative to the price level in 1900 is

(a) 3.75.

(b) 5.

(c) 3.33.

(d) 6.25.

(e) not possible to determine from this information.

7.5 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 2000, the price of x was 10 doggerels per unit and the price of y was 4 doggerels per unit. The Paasche price index of prices in 2000 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.

(a) 1.67

(b) 1.83

(c) 1

(d) 0.75

(e) 2.50

7.4 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. On this planet 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 2000, the price of good 1 was 5 fragels and the price of good 2 was 5 fragels. The Laspeyres price index for the price level in 2000 relative to the price level in 1900 is

(a) 3.75.

(b) 5.

(c) 3.33.

(d) 6.25.

(e) not possible to determine from this information.

7.5 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 2000, the price of x was 10 doggerels per unit and the price of y was 4 doggerels per unit. The Paasche price index of prices in 2000 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.

Quiz 8

NAME_____

Slutsky Equation

8.1 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 \$1.25 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) \$37.50.

(b) \$76.

(c) \$18.75.

(d) \$56.25.

(e) \$150.

8.2 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 8 and the price of bananas stayed constant, the substitution effect on Charlie's apple consumption reduces his consumption by

(a) 17.50 apples.

(b) 7 apples.

(c) 8.75 apples.

(d) 13.75 apples.

(e) None of the other options are correct.

8.3 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 6,000 and he initially had to pay a price of 30 per bottle of claret. The price of claret rose to 40. The substitution effect of the price change

(a) reduced his demand by 20.

(b) increased his demand by 20.

(c) reduced his demand by 8.

(d) reduced his demand by 32.

(e) reduced his demand by 18.

8.4 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 the 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.

8.5 Suppose that Agatha in Problem 8.10 had \$570 to spend on tickets for her trip. She needs to travel a total of 1,500 miles. Suppose that the price of first-class tickets is \$0.50 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

8.6 In Problem 8.4, 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 \$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) 1/4 of the change will be due to the income effect.

(e) 3/4 of the change will be due to the income effect.

(a) \$3,333.33

(b) \$4,200

(c) \$200

(d) \$5,000

(e) \$2,000

11.4 A bond has a face value of \$9,000. It will pay \$900 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.

11.5 The sum of the infinite geometric series $1, 0.86, 0.86^2, 0.86^3, \ldots$ is closest to which of the following numbers?

(a) Infinity

(b) 1.86

(c) 7.14

(d) 0.54

(e) 116.28

11.6 If the interest rate is 11% and will remain 11% forever, how much would a rational investor be willing to pay for an asset that will pay him \$5,550 one year from now, \$1,232 two years from now, and nothing at any other time?

(a) \$6,000

(b) \$5,000

(c) \$54,545.45

(d) \$72,000

(e) \$7,000

Quiz 12

Uncertainty

NAME_____

12.1 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 dollars. 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.

12.2 (See Problem 12.2.) Willy's only source of wealth is his chocolate factory, which may be damaged by a flood. Let c_f and c_{nf} be his wealth contingent on a flood and on no flood, respectively. His utility function is $pc_f^{1/2} + (1-p)c_{nf}^{1/2}$, where p is the probability of a flood and $1-p$ is the probability of no flood. The probability of a flood is $p = 1/15$. 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/17$ 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 were a flood, after he collected his insurance his wealth would be 1/9 of what it would be if there were no flood.

(c) enough insurance so that if there were a flood, after he collected his insurance, his wealth would be the same whether there were a flood or not.

(d) enough insurance so that if there were a flood, after he collected his insurance, his wealth would be 1/4 of what it would be if there were no flood.

(e) enough insurance so that if there were a flood, after he collects his insurance his wealth would be 1/7 of what it would be if there were no flood.

12.3 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 $u(x) = 4,000 + x$ for x greater than or equal to 4,000. (Hint: Draw a graph of $u(x)$.)

(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's 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.

12.4 (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 \$2,500 with probability .40 and \$900 with probability .60. Wilbur will choose the sure payment if

(a) $Z > 1,444$ and the lottery if $Z < 1,444$.

(b) $Z > 1,972$ and the lottery if $Z < 1,972$.

(c) $Z > 900$ and the lottery if $Z < 900$.

(d) $Z > 1,172$ and the lottery if $Z < 1,172$.

(e) $Z > 1,540$ and the lottery if $Z < 1,540$.

12.5 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?

(e) enough insurance so that if there were a flood, after he collects his insurance his wealth would be 1/7 of what it would be if there were no flood.

12.3 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 $u(x) = 4,000 + x$ for x greater than or equal to 4,000. (Hint: Draw a graph of $u(x)$.)

(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's 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.

12.4 (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 \$2,500 with probability .40 and \$900 with probability .60. Wilbur will choose the sure payment if

(a) $Z > 1,444$ and the lottery if $Z < 1,444$.

(b) $Z > 1,972$ and the lottery if $Z < 1,972$.

(c) $Z > 900$ and the lottery if $Z < 900$.

(d) $Z > 1,172$ and the lottery if $Z < 1,172$.

(e) $Z > 1,540$ and the lottery if $Z < 1,540$.

12.5 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.

Quiz 14

NAME_____

Consumer's Surplus

14.1 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 75, how much is Sir Plus's net consumer's surplus?

(a) 312.50

(b) 25

(c) 625

(d) 156.25

(e) 6,000

14.2 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 her net consumer's surplus

(a) falls by \$1,237.50.

(b) falls by \$3237.50.

(c) falls by \$225.

(d) increases by \$618.75.

(e) increases by \$2,475.

14.3 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 \$13 per week and was paying a price of \$2 per pair of earrings, then if the price of earrings rose to \$4, the compensating variation of that price change (measured in dollars per week) would be closest to

(a) \$5.20.

(b) \$8.67.

(c) \$18.33.

(d) \$17.33.

(e) \$16.33.

14.4 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 \$1 for earrings when the price of earrings went up to \$8, then the equivalent variation of the price change was

(a) \$12.44.

(b) \$56.

(c) \$112.

(d) \$6.22.

(e) \$34.22.

14.5 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 .40, 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) 4.18.

(b) 3.60.

(c) 0.18.

(d) 6.18.

(e) 2.18.

(c) \$18.33.

(d) \$17.33.

(e) \$16.33.

14.4 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 \$1 for earrings when the price of earrings went up to \$8, then the equivalent variation of the price change was

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(a) 4.18.

(b) 3.60.

(c) 0.18.

(d) 6.18.

(e) 2.18.

Quiz 15

NAME_____

Market Demand

15.1 In Gas Pump, South Dakota, 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 has 100 Buick owners and 50 Dodge owners. If the price of gasoline is 4, what is the total amount of gasoline demanded in Gas Pump?

(a) 300 gallons

(b) 75 gallons

(c) 225 gallons

(d) 150 gallons

(e) None of the other options are correct.

15.2 In Problem 15.5, the demand function for drangles is given by $D(p) = (p + 1)^{-2}$. If the price of drangles is 10, then the price elasticity of demand is

(a) -7.27.

(b) -3.64.

(c) -5.45.

(d) -0.91.

(e) -1.82.

15.3 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 0 or 1 and for all positive values of x_2, suppose that Barbie's preferences were represented by the utility function $(x_1 + 4)(x_2 + 2)$. Then if her income were 28, her reservation price for good 1 would be

(a) 12.

(b) 1.50.

(c) 6.

(d) 2.

(e) .40.

15.4 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 $80,000 - 12,000p$. If the capacity of the stadium at that university is 50,000 seats, what is the revenue-maximizing price for this university to charge per ticket?

(a) 3.33

(b) 2.50

(c) 6.67

(d) 1.67

(e) 10

15.5 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.

(d) 2.

(e) .40.

15.4 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 $80,000 - 12,000p$. If the capacity of the stadium at that university is 50,000 seats, what is the revenue-maximizing price for this university to charge per ticket?

(a) 3.33

(b) 2.50

(c) 6.67

(d) 1.67

(e) 10

15.5 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.

Quiz 16

NAME_____

Equilibrium

16.1 This problem will be easier if you have done Problem 16.3. The inverse demand function for grapefruit is defined by the equation $p = 296 - 7q$, where q is the number of units sold. The inverse supply function is defined by $p = 17 + 2q$. A tax of 27 is imposed on suppliers for each unit of grapefruit that they sell. When the tax is imposed, the quantity of grapefruit sold falls to

(a) 31 units.

(b) 17.50 units.

(c) 26 units.

(d) 28 units.

(e) 29.50 units.

16.2 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 $q = 18 + 2p$ and the long run demand function was given by $q = 114 - 4p$ where p is the rental rate in crowns per week. The authorities made it illegal to rent an apartment for more than 10 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) 9 crowns

(b) 15 crowns

(c) 18 crowns

(d) 36 crowns

(e) 27 crowns

16.3 Suppose that King Kanuta from Problem 16.11 demands that each of his subjects give him 4 coconuts for every coconut that the subject consumes. 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 $D(p_d) = 8,320 - 100p_d$, where p_d is the price paid by consumers. In equilibrium, the price received by suppliers will be

(a) 16.

(b) 24.

(c) 41.60.

(d) 208.

(e) None of the other options are correct.

16.4 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 90, then the equilibrium price of Schrecklichs is

(a) 8.

(b) 25.

(c) 42.

(d) 34.

(e) 16.

37.4d. \$3.50.
37.4e. \$2.50.
37.6a. They'd all sell for \$1,000 for total revenue of \$1,000,000.
37.6b. $\$X/2$.
37.6c. $\$X - 200$.
37.6c. $\$X/2$.
37.6d. Solve $X/2 = X - 200$ to get $X = \$400$.
37.6e. The worst 200 cars will be unappraised and will sell for \$200.
37.6f. $\$1,000,000 - 800 \times 200 = 840,000$.

Answers to Quizzes

Chapter 2: Budget Constraint

2.1 C
2.2 A
2.3 B
2.4 C
2.5 C
2.6 A
2.7 B

Chapter 3: Preferences

3.1 E
3.2 C
3.3 B
3.4 D
3.5 B
3.6 E

Chapter 4: Utility

4.1 E
4.2 B
4.3 C
4.4 C
4.5 E
4.6 C

Chapter 5: Choice

5.1 A
5.2 E
5.3 D
5.4 B
5.5 B
5.6 D

Chapter 6: Demand

6.1 A
6.2 D
6.3 D
6.4 A
6.5 E
6.6 B
6.7 C

Chapter 7: Revealed Preference

7.1 B
7.2 C
7.3 A
7.4 A
7.5 A

Chapter 8: Slutsky Equation

8.1 A
8.2 C
8.3 C
8.4 C
8.5 A
8.6 C

Chapter 9: Buying and Selling

9.1 D
9.2 A
9.3 B
9.4 E
9.5 B
9.6 D

Chapter 10: Intertemporal Choice

10.1 B
10.2 B
10.3 B
10.4 E
10.5 A
10.6 C

Chapter 11: Asset Markets

11.1 A
11.2 A
11.3 D
11.4 A
11.5 C
11.6 A

Chapter 12: Uncertainty

12.1 A
12.2 B
12.3 C
12.4 A
12.5 B

Chapter 13: Risky Assets

13.1 C
13.2 A

Chapter 14: Consumer's Surplus

14.1 A
14.2 A
14.3 B
14.4 A
14.5 A

Chapter 8: Slutsky Equation

8.1 A
8.2 C
8.3 C
8.4 C
8.5 A
8.6 C

Chapter 9: Buying and Selling

9.1 D
9.2 A
9.3 B
9.4 E
9.5 B
9.6 D

Chapter 10: Intertemporal Choice

10.1 B
10.2 B
10.3 B
10.4 E
10.5 A
10.6 C

Chapter 11: Asset Markets

11.1 A
11.2 A
11.3 D
11.4 A
11.5 C
11.6 A

Chapter 12: Uncertainty

12.1 A
12.2 B
12.3 C
12.4 A
12.5 B

Chapter 13: Risky Assets

13.1 C
13.2 A

Chapter 14: Consumer's Surplus

14.1 A
14.2 A
14.3 B
14.4 A
14.5 A

Chapter 15: Market Demand

15.1 D
15.2 E
15.3 C
15.4 A
15.5 E

Chapter 16: Equilibrium

16.1 D
16.2 C
16.3 A
16.4 A

Chapter 17: Auctions

17.1 D
17.2 D
17.3 B
17.4 A
17.5 A

Chapter 18: Technology

18.1 A
18.2 A
18.3 B
18.4 B

Chapter 19: Profit Maximization

19.1 B
19.2 A
19.3 C
19.4 A

Chapter 20: Cost Minimization

20.1 B
20.2 D
20.3 A
20.4 E
20.5 A
20.6 D

Chapter 21: Cost Curves

21.1 A
21.2 A
21.3 C
21.4 A
21.5 E

Chapter 22: Firm Supply

22.1 B
22.2 A
22.3 D