Microeconomics 9th edition Pindyck Test Bank

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Microeconomics, 9e **(Pindyck/Rubinfeld)**
Chapter 2 The Basics of Supply and Demand

2.1 Supply and Demand

1) A supply curve reveals:
A) the quantity of output consumers are willing to purchase at each possible market price.
B) the difference between quantity demanded and quantity supplied at each price.
C) the maximum level of output an industry can produce, regardless of price.
D) the quantity of output that producers are willing to produce and sell at each possible market price.
Answer: D
Diff: 1
Section: 2.1

2) When an industry's raw material costs increase, other things remaining the same,
A) the supply curve shifts to the left.
B) the supply curve shifts to the right.
C) output increases regardless of the market price and the supply curve shifts upward.
D) output decreases and the market price also decreases.
Answer: A
Diff: 1
Section: 2.1

3) Sugar can be refined from sugar beets. When the price of those beets falls,
A) the demand curve for sugar would shift right.
B) the demand curve for sugar would shift left.
C) the supply curve for sugar would shift right.
D) the supply curve for sugar would shift left.
Answer: C
Diff: 1
Section: 2.1

4) Which of the following events will cause a leftward shift in the supply curve of gasoline?
A) A decrease in the price of gasoline
B) An increase in the wage rate of refinery workers
C) Decrease in the price of crude oil
D) An improvement in oil refining technology
E) all of the above
Answer: B
Diff: 1
Section: 2.1

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5) Which of the following would cause a shift to the right of the supply curve for gasoline?
I. A large increase in the price of public transportation.
II. A large decrease in the price of automobiles.
III. A large reduction in the costs of producing gasoline.
A) I only
B) II only
C) III only
D) II and III only
Answer: C
Diff: 2
Section: 2.1

6) To protect the cod fishery off the northeast coast of the U.S., the federal government may limit the amount of fish that each boat can catch in the fishery. The result of this public policy is to:
A) shift the cod demand curve to the left.
B) shift the cod demand curve to the right.
C) shift the cod supply curve to the right.
D) shift the cod supply curve to the left.
Answer: D
Diff: 1
Section: 2.1

7) The battery packs used in electric and hybrid automobiles are one of the largest cost components for manufacturing these cars. As the price of these batteries decline, we expect that the:
A) supply curve for electric and hybrid autos will shift rightward.
B) supply curve for electric and hybrid autos will shift leftward.
C) demand curve for electric and hybrid autos will shift rightward.
D) demand curve for electric and hybrid autos will shift leftward.
Answer: A
Diff: 1
Section: 2.1

8) Rare earth metals are used to manufacture some important electronic components in popular products like cell phones. These metals are not really rare, but they are expensive to extract from the ground. What happens to the market for the rare earth metals if these extraction costs increase?
A) Demand curve shifts leftward
B) Demand curve shifts rightward
C) Supply curve shifts leftward
D) Supply curve shifts rightward
Answer: C
Diff: 1
Section: 2.1

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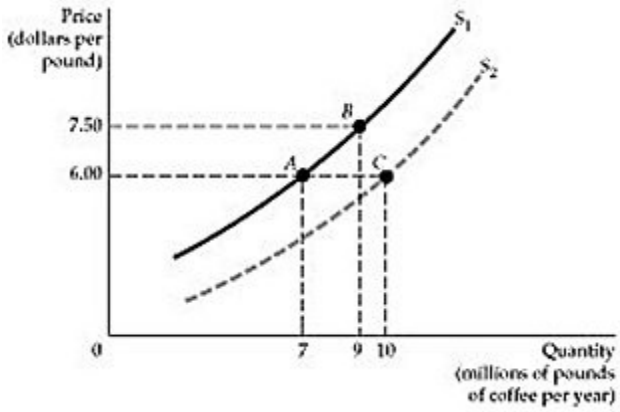

Figure 2.1.1

9) Refer to Figure 2.1.1 above. Lower material costs—indeed lower costs of any kind—make production more profitable. Starting at point *A*, which of the following best represents this assertion?
A) The move from *A* to *B*
B) The move from *A* to *C*
C) A move from *A* to *B*, and then to *C*
D) A move from *A* to *C*, and then to *B*
Answer: B
Diff: 1
Section: 2.1

10) Refer to Figure 2.1.1 above. Starting from point *A*, how do the firms in the market react when the price of coffee increases from $6.00 to $7.50 per pound?
A) The supply curve shifts to the right and the quantity supplied increases to 10 million pounds per year.
B) The supply curve shifts from S1 to S2, but the market moves from *A* to *B*, so the quantity supplied increases to 9 million pounds per year.
C) The market moves from *A* to *B* temporarily, but eventually will settle at point *C*, where the quantity supplied will be 10 million pounds.
D) The supply curve does not shift, but the quantity supplied increases from 7 to 9 million pounds per year.
Answer: D
Diff: 1
Section: 2.1

11) Plastic and steel are substitutes in the production of body panels for certain automobiles. If the price of plastic increases, with other things remaining the same, we would expect:
A) the price of steel to fall.
B) the demand curve for steel to shift to the right.
C) the demand curve for plastic to shift to the left.
D) nothing to happen to steel because it is only a substitute for plastic.
E) the demand curve for steel to shift to the left.
Answer: B
Diff: 1
Section: 2.1

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12) Coffee and cream:
A) are both luxury goods.
B) are complements.
C) are both more inelastic in demand in the long run than in the short run.
D) have a positive cross price elasticity of demand.
Answer: B
Diff: 1
Section: 2.1

13) Which of the following would shift the demand curve for new textbooks to the right?
A) A fall in the price of paper used in publishing texts
B) A fall in the price of equivalent used textbooks
C) An increase in the number of students attending college
D) A fall in the price of new textbooks.
Answer: C
Diff: 1
Section: 2.1

14) Assume that steak and potatoes are complements. When the price of steak goes up, the demand curve for potatoes:
A) shifts to the left.
B) shifts to the right.
C) remains constant.
D) shifts to the right initially and then returns to its original position.
Answer: A
Diff: 1
Section: 2.1

15) You are analyzing the demand for good X. Which of the following will result in a shift to the right of the demand curve for X?
A) A decrease in the price of X
B) An increase in the price of a good that is a complement to good X
C) An increase in the price of a good that is a substitute for X
D) all of the above
Answer: C
Diff: 1
Section: 2.1

16) The price of good A goes up. As a result, the demand for good B shifts to the left. From this we can infer that:
A) good A is used to produce good B.
B) good B is used to produce good A.
C) goods A and B are substitutes.
D) goods A and B are complements.
E) none of the above
Answer: D
Diff: 2
Section: 2.1

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17) Which of the following will cause the demand curve for Beatles' compact discs to shift to the right?
A) An increase in the price of the discs
B) A decrease in consumers' incomes
C) An increase in the price of Phil Collins' latest compact disc (a substitute)
D) all of the above
E) none of the above
Answer: C
Diff: 1
Section: 2.1

18) The discussion of Figure 2.2 in the text indicates that quantity demanded for most goods tends to increase as income rises. However, the quantity of bananas demanded in the U.S. tends to decrease as income rises. Under this condition, we expect that an increase in consumer income shifts the demand curve for bananas:
A) rightward
B) no shift.
C) leftward.
D) upward.
Answer: C
Diff: 1
Section: 2.1

19) Due to the recent increase in the price of natural gas, the quantity of coal demanded by electric power generation plants has increased. Based on this information, coal and natural gas are:
A) complements.
B) substitutes.
C) independent goods.
D) none of the above
Answer: B
Diff: 1
Section: 2.1

20) To protect the cod fishery off the northeast coast of the U.S., the federal government may limit the amount of fish that each boat can catch in the fishery. The result of this public policy is to:
A) shift the cod demand curve to the left.
B) shift the cod demand curve to the right.
C) shift the cod supply curve to the right.
D) shift the cod supply curve to the left.
Answer: D
Diff: 1
Section: 2.1

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21) The battery packs used in electric and hybrid automobiles are one of the largest cost components for manufacturing these cars. As the price of these batteries decline, we expect that the:
A) supply curve for electric and hybrid autos will shift rightward.
B) supply curve for electric and hybrid autos will shift leftward.
C) demand curve for electric and hybrid autos will shift rightward.
D) demand curve for electric and hybrid autos will shift leftward.
Answer: A
Diff: 1
Section: 2.1

22) Rare earth metals are used to manufacture some important electronic components in popular products like cell phones. These metals are not really rare, but they are expensive to extract from the ground. What happens to the market for the rare earth metals if these extraction costs increase?
A) Demand curve shifts leftward
B) Demand curve shifts rightward
C) Supply curve shifts leftward
D) Supply curve shifts rightward
Answer: C
Diff: 1
Section: 2.1

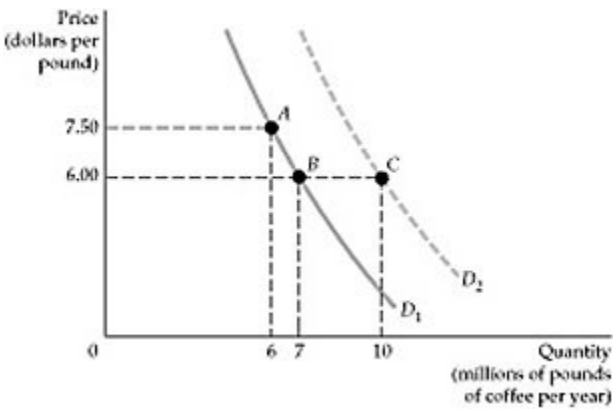

Figure 2.1.2

23) Refer to Figure 2.1.2. If the price of coffee decreases, from $7.50 to $6.00 per pound, which of the following will occur?
A) The quantity demanded of coffee will increase, from 6 to 7 million pounds per year.
B) The demand curve will shift to the right and the quantity demanded will increase to 10 million pounds per year.
C) Both moves, from A to B and then from *B* to *C*, will occur simultaneously.
D) It is possible that the market demand will show the move fro *A* to *B*, or that it moves directly from *A* to *C*.
Answer: A
Diff: 1
Section: 2.1

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24) Refer to Figure 2.1.2. The price of coffee is currently $6.00. and quantity demanded is 7 million pounds. Then there is a notable increase in the preference for coffee over other substitutes, like tea. Which move best describes this change?
A) A move from *B* to *A*
B) A move from *B* to *C*
C) A move from *B* to *A*, and then to *C*
D) A move from *B* to *C*, and then to *A*
Answer: B
Diff: 1
Section: 2.1

2.2 The Market Mechanism

1) When the current price is above the market-clearing level we would expect:
A) quantity demanded to exceed quantity supplied.
B) quantity supplied to exceed quantity demanded.
C) a shortage.
D) greater production to occur during the next period.
Answer: B
Diff: 1
Section: 2.2

2) Assume that the current market price is below the market clearing level. We would expect:
A) a surplus to accumulate.
B) downward pressure on the current market price.
C) upward pressure on the current market price.
D) lower production during the next time period.
Answer: C
Diff: 1
Section: 2.2

3) As long as the actual market price exceeds the equilibrium market price, there will be:
A) downward pressure on the market price.
B) upward pressure on the market price.
C) no purchases made.
D) Both A and C are correct.
E) Both B and C are correct.
Answer: A
Diff: 1
Section: 2.2

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4) If the actual price were below the equilibrium price in the market for bread, a:
A) surplus would develop that cannot be eliminated over time.
B) shortage would develop, which market forces would eliminate over time.
C) surplus would develop, which market forces would eliminate over time.
D) shortage would develop, which market forces would tend to exacerbate.
Answer: B
Diff: 1
Section: 2.2

5) Suppose the quantity of nursing services demanded exceeds the quantity of nursing services supplied. The nursing wage rate will:
A) decrease.
B) increase.
C) not change.
D) none of the above
Answer: B
Diff: 1
Section: 2.2

Scenario 2.1:

The demand for books is: $Q_d = 120 - P$
The supply of books is: $Q_s = 5P$

6) Refer to Scenario 2.1. What is the equilibrium price of books?
A) 5
B) 10
C) 15
D) 20
E) none of the above
Answer: D
Diff: 1
Section: 2.2

7) Refer to Scenario 2.1. What is the equilibrium quantity of books sold?
A) 25
B) 50
C) 75
D) 100
E) none of the above
Answer: D
Diff: 1
Section: 2.2

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8) Refer to Scenario 2.1. If P = $15, which of the following is true?
A) There is a surplus equal to 30.
B) There is a shortage equal to 30.
C) There is a surplus, but it is impossible to determine how large.
D) There is a shortage, but it is impossible to determine how large.
Answer: B
Diff: 2
Section: 2.2

9) Refer to Scenario 2.1. If P = $15, which of the following is true?
A) Quantity supplied is greater than quantity demanded.
B) Quantity supplied is less than quantity demanded.
C) Quantity supplied equals quantity demanded.
D) There is a surplus.
Answer: B
Diff: 1
Section: 2.2

10) Refer to Scenario 2.1. If P = $25, which of the following is true?
A) There is a surplus equal to 30.
B) There is a shortage equal to 30.
C) There is a shortage, but it is impossible to determine how large.
D) There is a surplus, but it is impossible to determine how large.
Answer: A
Diff: 2
Section: 2.2

11) Refer to Scenario 2.1. If P = $25, which of the following is true?
A) Quantity supplied is greater than quantity demanded.
B) Quantity supplied is less than quantity demanded.
C) Quantity supplied equals quantity demanded.
D) There is a shortage.
Answer: A
Diff: 1
Section: 2.2

12) Suppose the equilibrium price of milk is $3 per gallon but the federal government sets the market price at $4 per gallon. The market mechanism will force the milk price back down to $3 per gallon unless the government:
A) rations the excess demand for milk among consumers.
B) buys the excess supply of milk and removes it from the market.
C) Both A and B are plausible actions.
D) The government cannot maintain the price above the equilibrium level.
Answer: B
Diff: 2
Section: 2.2

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13) The current market price for good X is below the equilibrium price, and then the demand curve for X shifts rightward. What is the likely outcome of the demand shift?
A) The surplus increases.
B) The surplus decreases.
C) The shortage increases.
D) The shortage decreases.
Answer: C
Diff: 1
Section: 2.2

14) Suppose there is currently a surplus of wheat on the world market. The problem of excess supply may be removed from the market by:
A) lowering the market price.
B) shifting the supply curve leftward.
C) shifting the demand curve leftward.
D) Both A and B are plausible actions.
Answer: D
Diff: 2
Section: 2.2

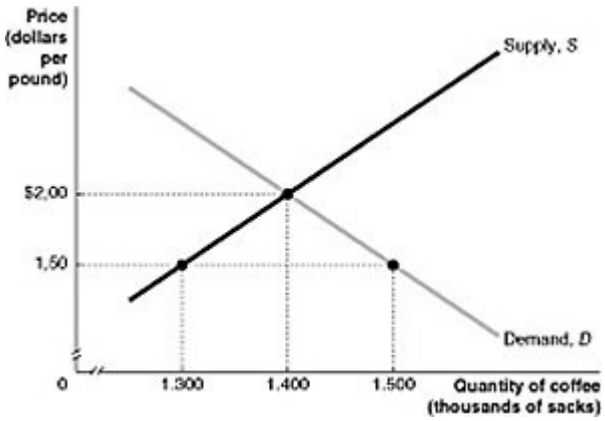

Figure 2.2.1

15) Refer to Figure 2.2.1 above. At a price of $1.50, there is:
A) an excess of quantity demanded over quantity supplied.
B) an excess of quantity supplied over quantity demanded.
C) an alternative equilibrium between supply and demand.
D) a surplus of coffee in the market.
Answer: A
Diff: 1
Section: 2.2

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16) Refer to Figure 2.2.1 above. If the price of $1.50 is a price imposed by the government, we can call it:
A) a price floor.
B) a price ceiling.
C) a socially optimal equilibrium price.
D) a fiscal price.
Answer: B
Diff: 2
Section: 2.2

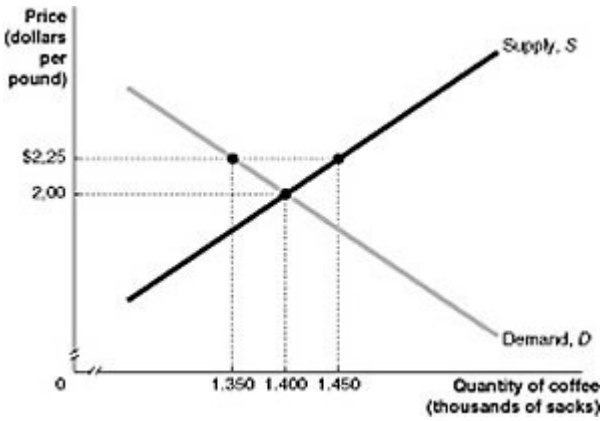

Figure 2.2.2

17) Refer to Figure 2.2.2 above. An imposed price of $2.25 can be called:
A) a price ceiling.
B) a price floor.
C) a consumer-friendly price.
D) a price of equilibrium difference.
Answer: B
Diff: 2
Section: 2.2

18) Refer to Figure 2.2.2 above. If the price of $2.25 is an artificial price imposed by the government, and the government is expected to remove it, what will happen in this market?
A) There will a tendency for the price to be higher than the imposed price.
B) There will a tendency for the new price to be lower than the imposed price.
C) The new price would not be expected to by any different than the already imposed price.
D) The new price will tend to fluctuate above and below the equilibrium price of $2.00.
Answer: A
Diff: 2
Section: 2.2

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19) The inverse demand curve for product X is given by:

$$P_X = 25 - 0.005Q + 0.15P_Y,$$

where P_X represents price in dollars per unit, Q represents rate of sales in pounds per week, and P_Y represents selling price of another product Y in dollars per unit. The inverse supply curve of product X is given by: $P_X = 5 + 0.004Q$.

a. Determine the equilibrium price and sales of X. Let $P_Y = \$10$.

b. Determine whether X and Y are substitutes or complements.

Answer: ***a.***

Equate supply to demand to calculate Q.

$$25 - 0.005Q + 0.15(10) = 5 + 0.004Q$$
$$21.5 = 0.009Q$$
$$Q = 2{,}388.9 \text{ units per week}$$

At Q = 2,388.9, $P = 25 - .005(2{,}388.9) + 0.15(10)$

$= \$14.56$ per unit.

b.

Since we can solve for quantity demanded as a function of prices,

$$Q = \frac{25 + 0.15P_Y - P_X}{0.005}$$

we see that there is a direct, positive relationship between Q and P_Y. An increase in the price of good Y generates an increase in the quantity demanded for good X at any value of P_X, which implies that goods Y and X are substitutes.

Diff: 2

Section: 2.2

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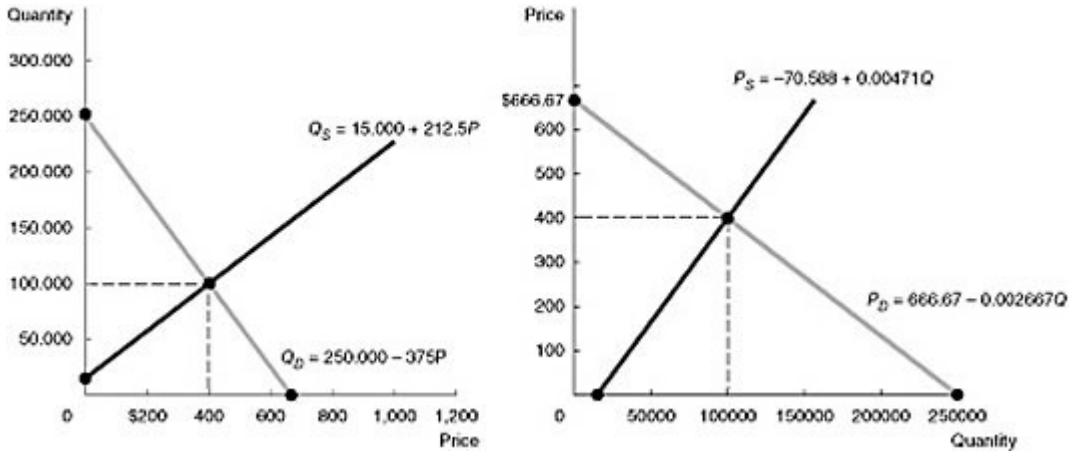
20) The daily demand for hotel rooms on Manhattan Island in New York is given by the equation $Q_D = 250{,}000 - 375P$. The daily supply of hotel rooms on Manhattan Island is given by the equation $Q_S = 15{,}000 + 212.5P$. Diagram these demand and supply curves in the price and quantity space. What is the equilibrium price and quantity of hotel rooms on Manhattan Island?



Answer: The equilibrium price can be found by equating quantity demanded and quantity supplied (graphically, this is where the Demand and Supply curves intersect). The solution for the equilibrium price may be derived from $Q_D = 250{,}000 - 375P = 15{,}000 + 212.5P = Q_S$. We can then solve for equilibrium price as $P = \frac{235{,}000}{587.5} = 400$.

At a price of $400, quantity supplied and quantity demanded are 100,000.
Diff: 1
Section: 2.2

2.3 Changes in Market Equilibrium

1) Which of the following would cause an *unambiguous* decrease in the real price of DVD players?
A) A shift to the right in the supply curve for DVD players and a shift to the right in the demand curve for DVD players
B) A shift to the right in the supply curve for DVD players and a shift to the left in the demand curve for DVD players
C) A shift to the left in the supply curve for DVD players and a shift to the right in the demand curve for DVD players
D) A shift to the left in the supply curve for DVD players and a shift to the left in the demand curve for DVD players
Answer: B
Diff: 2
Section: 2.3

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2) From 1970 to 2017, the real price of a college education increased, and total enrollment increased. Which of the following *could* have caused this increase in price and enrollment?
A) A shift to the right in the supply curve for college education and a shift to the left in the demand curve for college education
B) A shift to the left in the supply curve for college education and a shift to the right in the demand curve for college education
C) A shift to the left in the supply curve for college education and a shift to the left in the demand curve for college education
D) none of the above
Answer: B
Diff: 3
Section: 2.3

3) From 1970 to 2017, the real price of eggs decreased. Which of the following would cause an *unambiguous* decrease in the real price of eggs?
A) A shift to the right in the supply curve for eggs and a shift to the right in the demand curve for eggs
B) A shift to the right in the supply curve for eggs and a shift to the left in the demand curve for eggs
C) A shift to the left in the supply curve for eggs and a shift to the right in the demand curve for eggs
D) A shift to the left in the supply curve for eggs and a shift to the left in the demand curve for eggs
Answer: B
Diff: 2
Section: 2.3

4) From 1970 to 2017, the real price of eggs decreased and the total annual consumption of eggs decreased. Which of the following would cause an unambiguous decrease in the real price of eggs and an unambiguous decrease in the quantity of eggs consumed?
A) A shift to the right in the supply curve for eggs and a shift to the right in the demand curve for eggs
B) A shift to the left in the supply curve for eggs and a shift to the right in the demand curve for eggs
C) A shift to the left in the supply curve for eggs and a shift to the left in the demand curve for eggs
D) none of the above
Answer: D
Diff: 3
Section: 2.3

5) We observe that both the price of and quantity sold of golf balls are rising over time. This is due to:
A) continual improvements in the technology used to produce golf balls.
B) increases in the price of golf clubs over time.
C) decreases in membership fees for country clubs with golf facilities.
D) more stringent professional requirements on the quality of golf balls requiring producers to use more expensive raw materials.
Answer: C
Diff: 3
Section: 2.3

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6) Which of the following will cause the price of beer to rise?
A) A shift to the right in the demand curve for beer
B) A shift to the left in the supply curve of beer
C) both A and B
D) none of the above
Answer: C
Diff: 1
Section: 2.3

7) Example 2.2 in the textbook explains the source of wage inequality in the United States. In terms of supply and demand, the wage of unskilled workers has:
A) decreased, because the supply has increased more than the increase in demand for those workers.
B) decreased, because the demand has decreased, and the supply has increased.
C) increased, because the demand has increased faster than the increase in supply.
D) increased, because the demand has increased, while the supply has decreased.
Answer: A
Diff: 1
Section: 2.3

8) Example 2.2 in the textbook explains the source of wage inequality in the United States. In terms of supply and demand, the wage of skilled workers has:
A) decreased, because the supply has increased more than the increase in demand for those workers.
B) decreased, because the demand has decreased and the supply has increased.
C) increased, because the demand has increased faster than the increase in supply.
D) increased, because the demand has increased, while the supply has decreased.
Answer: C
Diff: 1
Section: 2.3

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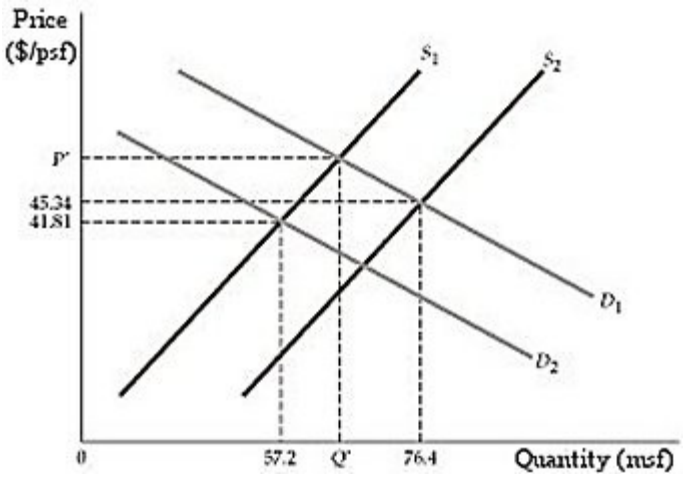

Figure 2.3.1

9) Refer to Figure 2.3.1. In Example 2.4, the textbook describes the impact of 9/11 on the real estate market in New York city. How does the sketch in figure 2.3.1 adapt to the described scenario?
A) Demand shifted from D_1 to D_2 and supply shifted from S_1 to S_2.
B) Demand shifted from D_1 to D_2 and supply shifted from S_2 to S_1.
C) Demand shifted from D_2 to D_1 and supply shifted from S_1 to S_2.
D) Demand shifted from D_2 to D_1 and supply shifted from S_2 to S_1.
Answer: B
Diff: 2
Section: 2.3

10) The effect of the September 11 attacks on the World Trade Center on the market for office space in downtown Manhattan was that both the equilibrium price and the equilibrium quantity fell. What is the most likely explanation for this?
A) Supply and demand both shifted left, and the magnitude of the demand shift was greater.
B) Supply and demand both shifted left, and the magnitude of the supply shift was greater.
C) Supply shifted left, demand shifted right, and the magnitude of the demand shift was greater.
D) Supply shifted left, demand shifted right, and the magnitude of the supply shift was greater.
Answer: A
Diff: 2
Section: 2.3

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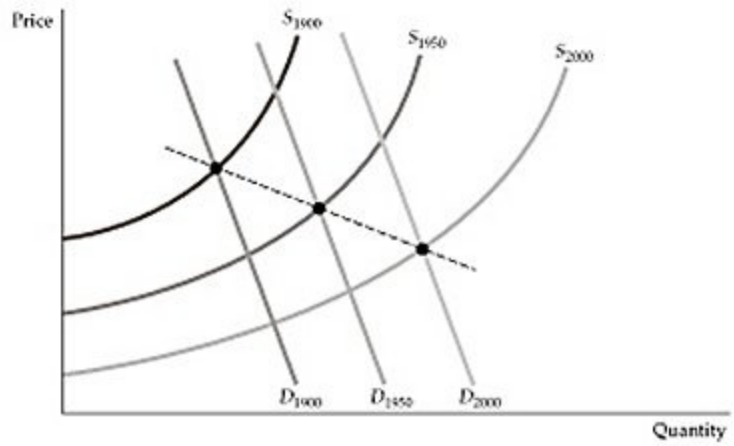

Figure 2.3.2

11) Figure 2.3.2 above is a reproduction of Figure 2.9 in the textbook, which describes the market for mineral resources across time. The downward-sloping line that crosses the equilibrium points is called:
A) the market decline curve.
B) the market rise path.
C) the long-run path of price and consumption.
D) the industry supply curve.
Answer: C
Diff: 1
Section: 2.3

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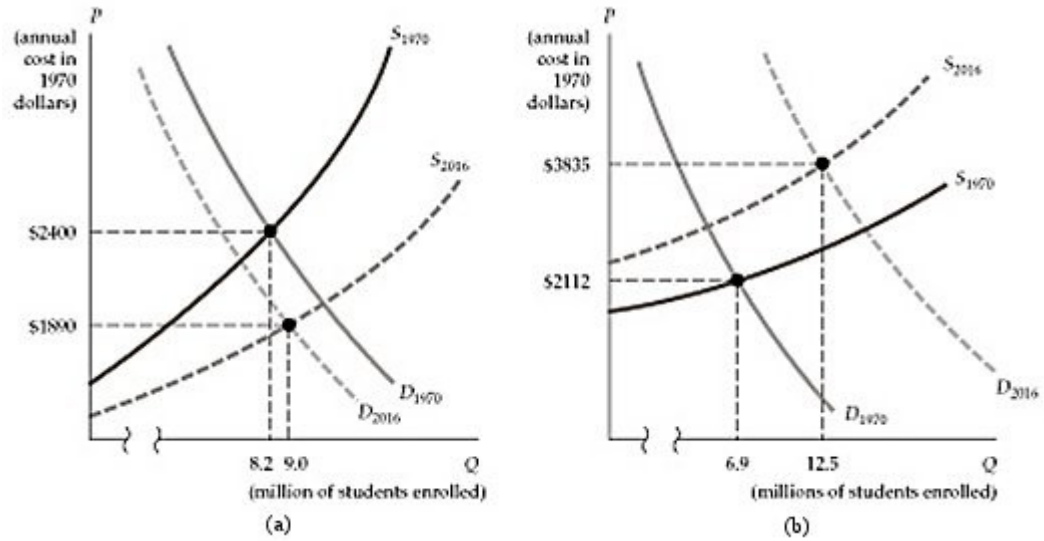

Figure 2.3.3

12) Refer to Figure 2.3.3 above. Which of the two panels best describes the trend in college costs from 1970 to 2016?
A) Panel (a)
B) Panel (b)
C) Both panels
D) Neither panel
Answer: A
Diff: 1
Section: 2.3

13) In example 2.3, the textbook shows a surprising trend in the relationship between the price of copper and the consumption of copper over time. From 1880 to 2016, which of the following ocurred?
A) The consumption of copper remained virtually unchanged, yet the price increases substantially.
B) The price of copper reflected precisely the market prediction that as consumption rose steadily over time, the price of copper rose at almost exactly the same rate.
C) The price of copper remained virtually unchanged while the consumption of copper rose exponentially.
D) While the price of copper rose substantially, the consumption of copper actually declined.
Answer: C
Diff: 1
Section: 2.3

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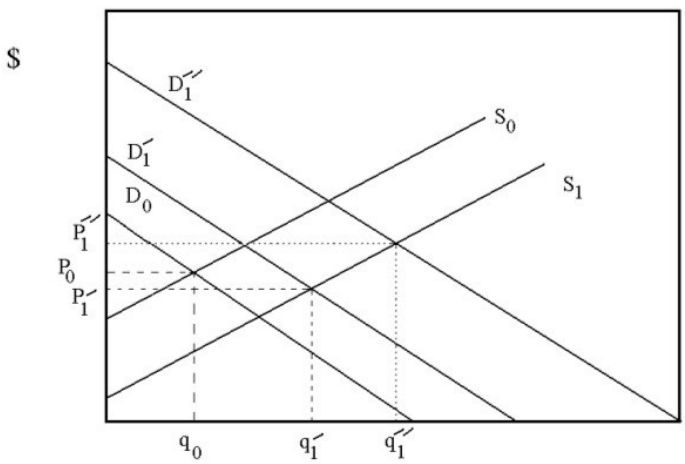
14) By 2020, automobile market analysts expect that the demand for electric autos will increase as buyers become more familiar with the technology. However, the costs of producing electric autos may increase because of higher costs for inputs (e.g., rare earth elements), or they may decrease as the manufacturers learn better assembly methods (i.e., learning by doing). What is the expected impact of these changes on the equilibrium price and quantity for electric autos?
A) Unambiguously higher equilibrium price and quantity
B) Unambiguously higher price, and equilibrium quantity may be higher or lower
C) Unambiguously higher quantity, and equilibrium price may be higher or lower
D) We cannot form any unambiguous expectations for either price or quantity.
Answer: D
Diff: 2
Section: 2.3

15) Suppose a new discovery in computer manufacturing has just made computer production cheaper. Also, the popularity and usefulness of computers continues to grow. Use Supply and Demand analysis to predict how these shocks will affect equilibrium price and quantity of computers. Is there enough information to determine if market prices will rise or fall? Why?



Answer: The increase in demand due to the usefulness of computers will shift the demand curve to the right. This effect alone on the market will influence the market price and quantity to rise. This is shown above by a movement from the original demand curve D_0 to a new demand curve such as D_1' or D_1''. The reduction in the cost of producing computers will result in an increase in supply (a rightward shift of the supply curve). This effect alone on the market will influence the price of computers to fall while the quantity will increase. Note that the supply and demand effects on price work in opposite directions. If the supply effect dominates the demand effect, the equilibrium prices will fall. This is exhibited by the increase in demand to only D_1'. On this demand curve, the net effect is for prices to fall from P_0 to P_1'. On the other hand if the demand effect dominates, equilibrium prices will rise. This is exhibited by the increase in demand to D_1''. On this demand curve, the net effect is for prices to rise from P_0 to P_1''. As we don't know given the current information which effect dominates, we can't perfectly predict the change in price. The change in quantity is unambiguously increased.
Diff: 2
Section: 2.3

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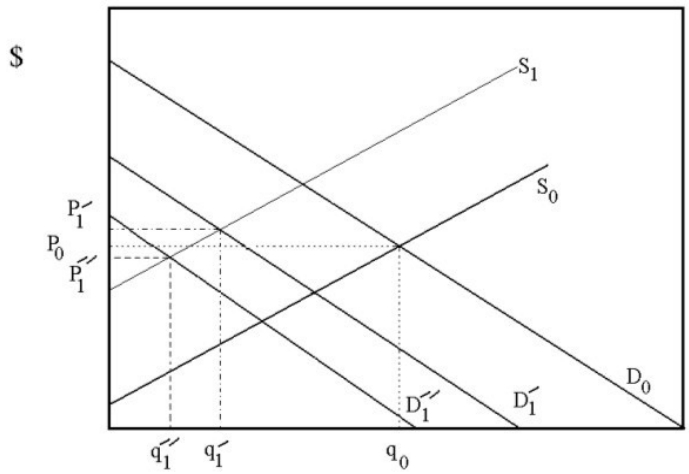
16) Suppose that due to more stringent environmental regulation it becomes more expensive for steel production firms to operate. Also, recent technological advances in plastics has reduced the demand for steel products. Use Supply and Demand analysis to predict how these shocks will affect equilibrium price and quantity of steel. Can we say with certainty that the market price for steel will fall? Why?



Answer: The increase in the cost of production of steel will shift the supply curve to the left. This effect alone on the market will influence the market price to rise while the market quantity will fall. This is shown above by a movement from the original supply curve S_0 to a new supply curve such as S_1. The decrease in demand will cause the demand curve to shift to the left. This effect alone on the market will influence the market price and quantity of steel to fall. Note that the supply and demand effects on price work in opposite directions. If the supply effect dominates the demand effect, the equilibrium prices will rise. This is exhibited by the decrease in demand to D_1'. On this demand curve, the net effect is for prices to rise from P_0 to P_1'. On the other hand if the demand effect dominates, the equilibrium price will decline. This is exhibited by the decrease in demand to D_1''. On this demand curve, the net effect is for prices to fall from P_0 to P_1''. As we don't know given the current information which effect dominates, we can't perfectly predict the change in price. The change in equilibrium quantity is unambiguously decreased.
Diff: 2
Section: 2.3

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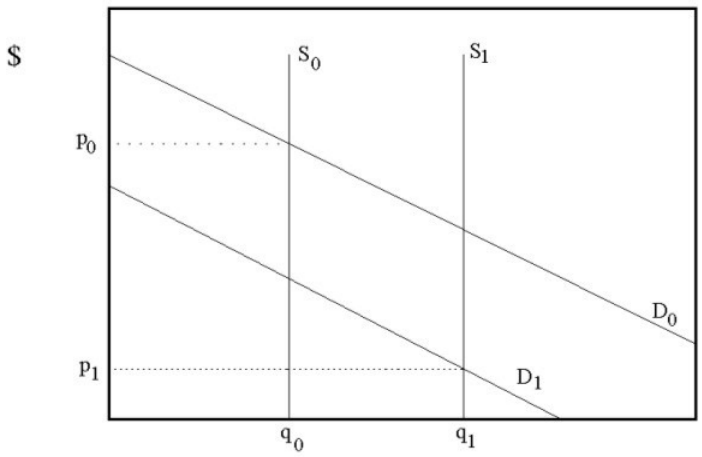
17) Historically, investors have considered gold commodities to be a good investment to preserve wealth in times of inflation. If investors are no longer worried about inflation and gold demand decreases, what do you expect will happen to gold prices? How would your answer change if you learn that a recent gold mine discovery will increase the supply of gold?



Answer: The decrease in gold demand due to reduced fears of inflation will shift the demand curve to the left. This is indicated above by a movement from D_0 to D_1. The effect on gold prices is negative. If new gold discoveries increase the supply of gold, the supply curve will shift to the right. This effect will also exert downward pressure on gold prices. This effect is diagrammed above as a movement from S_0 to S_1. Since both effects cause gold prices to become lower, we can say unambiguously that gold prices will decline.
Diff: 2
Section: 2.3

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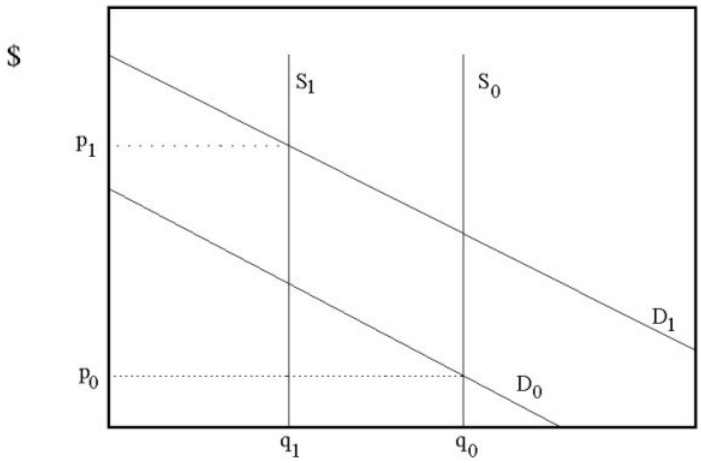
18) The currency used by the Confederate States of America during its brief existence from 1861 to 1865 has become a collector's item today. The Confederate Currency supply is perfectly inelastic. As the demand for the collectible increases and some of the old currency is destroyed or no longer of value as a collectible, what happens to the market price?



Answer: The increase in demand for Confederate currency will result in a rightward shift of demand from D_0 to D_1. This demand effect will put upward pressure on the price of Confederate currency. As some of the collectibles deteriorate and become worthless, the supply curve shifts back to the left as indicated above by the movement from S_0 to S_1. The supply effect places upward pressure on prices. Both effects put upward pressure on prices, so we can say unambiguously that prices for Confederate currency will rise.

Diff: 2
Section: 2.3

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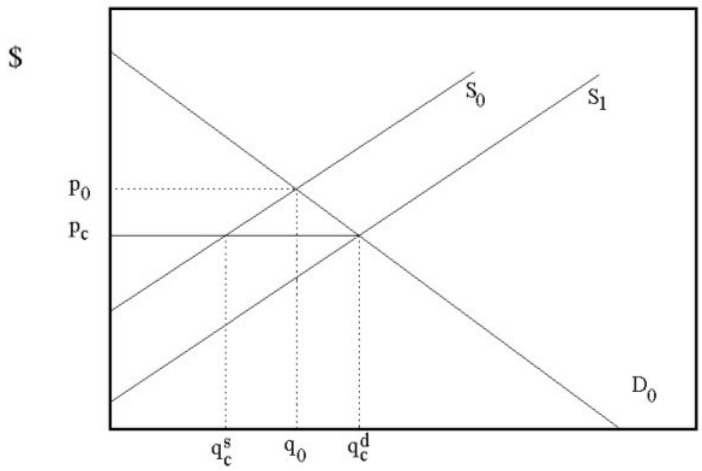
19) Suppose the cable TV industry is currently unregulated. However, due to complaints from consumers that the price of cable TV is too high, the legislature is considering placing a price ceiling on cable TV below the current equilibrium price. Assuming the government does make this price ceiling law, please construct a diagram that shows the impact of this law on the cable TV market, and please briefly explain the effects on market prices and quantities with supply and demand analysis. Also, if the cable TV company is worried about disgruntling customers, the company may introduce a different type of programming that is cheaper for the company to provide yet is equally appealing to customers. What would be the effects of this action?



Answer: Before implementation of the price ceiling, the equilibrium price and quantity is given by the intersection of demand and supply. This is illustrated above as p_0 and q_0. A price ceiling below the initial equilibrium price will cause a shortage. That is quantity demanded (q^d_c) at the price ceiling (p_c) exceeds quantity supplied (q^s_c). To avoid upsetting consumers, the company may provide a lower quality cable TV subscription. This cheaper package would increase the supply of cable TV. The supply curve will rightward. This action will move towards eliminating the cable TV shortage as the quantity supplied of the modified package increases.
Diff: 2
Section: 2.3

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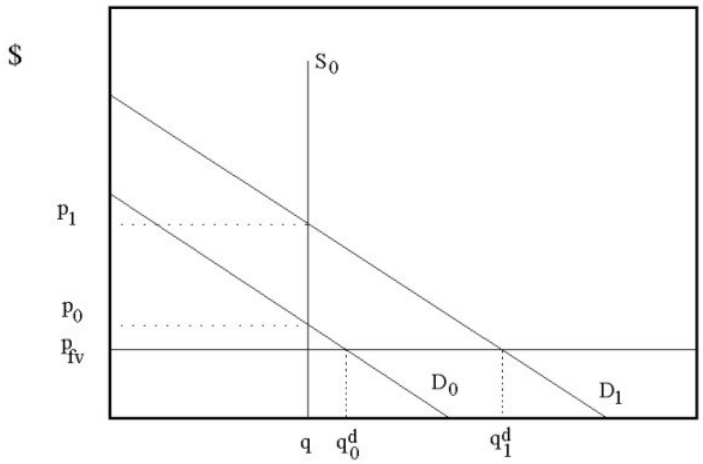
20) Suppose that the resale of tickets to professional football games is illegal in Missouri. Due to the high demand for Chiefs (who play in Kansas City, Missouri) tickets there is a shortage of tickets at the current ticket price. Given that the Chiefs will not raise the price at which they sell the tickets, what would be the result of allowing tickets to be resold in a secondary market at whatever price the market would support? If speculators entered the market and began buying tickets directly from the Chiefs in hopes of reselling the tickets later, what would happen to the line outside of the ticket offices when the tickets are initially sold?



Answer: Initially, there is a shortage due to the prohibition of resale of tickets above face value. That is quantity demanded ($q^d{}_0$) exceeds quantity supplied (q) at the face value price (p_{fv}). If resale of tickets is allowed, the shortage will disappear as market forces bid the price of Chief tickets up to the price at which quantity demanded and supplied are equal. If the Chiefs organization continues to sell tickets at p_0, speculators may begin purchasing the tickets directly in hopes of reselling the tickets on the secondary market for higher prices. The influx of speculative demand will shift the demand curve to the right. This implies that at face value, there is even a greater shortage for tickets, and the line outside the ticket office will grow longer.
Diff: 3
Section: 2.3

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2.4 Elasticities of Supply and Demand

1) Which of the following represents the price elasticity of demand?

A) $\dfrac{\left(\dfrac{\Delta Q}{P}\right)}{\left(\dfrac{\Delta P}{Q}\right)}$

B) $\left(\dfrac{\Delta Q}{P}\right) + \left(\dfrac{\Delta P}{Q}\right)$

C) $\left(\dfrac{\Delta Q}{\Delta P}\right) \times \left(\dfrac{P}{Q}\right)$

D) $\left(\dfrac{\Delta Q}{P}\right) - \left(\dfrac{\Delta P}{Q}\right)$

Answer: C
Diff: 2
Section: 2.4

2) Elasticity measures:
A) the slope of a demand curve.
B) the inverse of the slope of a demand curve.
C) the percentage change in one variable in response to a one percent increase in another variable.
D) sensitivity of price to a change in quantity.
Answer: C
Diff: 1
Section: 2.4

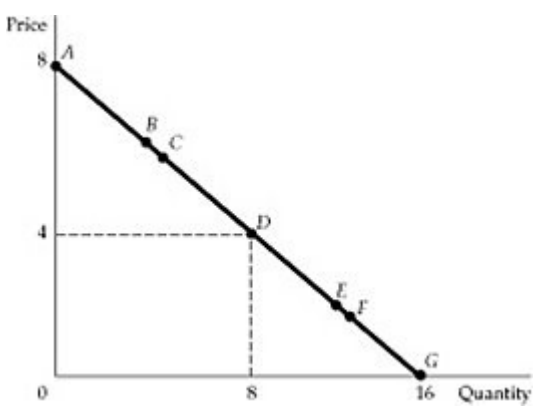

Figure 2.4.1

3) Refer to Figure 2.4.1. Between points *B* and *C*, demand is:
A) small.
B) inelastic, but not completely inelastic.
C) unit elastic.
D) elastic, but not infinitely elastic.
E) infinitely elastic.
Answer: D
Diff: 1
Section: 2.4

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4) Refer to Figure 2.4.1. At point *A*, demand is:
A) completely inelastic.
B) inelastic, but not completely inelastic.
C) unit elastic.
D) elastic, but not infinitely elastic.
E) infinitely elastic.
Answer: E
Diff: 2
Section: 2.4

5) Refer to Figure 2.4.1. Between two points near *D*, demand is:
A) completely inelastic.
B) inelastic, but not completely inelastic.
C) unit elastic.
D) elastic, but not infinitely elastic.
E) infinitely elastic.
Answer: C
Diff: 2
Section: 2.4

6) Refer to Figure 2.4.1. Between points *E* and *F*, demand is:
A) completely inelastic.
B) inelastic, but not completely inelastic.
C) unit elastic.
D) elastic, but not infinitely elastic.
E) infinitely elastic.
Answer: B
Diff: 1
Section: 2.4

7) Refer to Figure 2.4.1. At point *E*, demand is:
A) completely inelastic.
B) inelastic, but not completely inelastic.
C) unit elastic.
D) elastic, but not infinitely elastic.
E) infinitely elastic.
Answer: A
Diff: 2
Section: 2.4

8) Refer to Figure 2.4.1. Which of the following statements about the demand curve in the figure?
A) Demand is infinitely elastic.
B) Demand is completely inelastic.
C) Demand becomes more inelastic as price declines.
D) Demand becomes more elastic as price declines.
Answer: C
Diff: 1
Section: 2.4

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9) Along any downward-sloping straight-line demand curve:
A) both the price elasticity and slope vary.
B) the price elasticity varies, but the slope is constant.
C) the slope varies, but the price elasticity is constant.
D) both the price elasticity and slope are constant.
Answer: B
Diff: 2
Section: 2.4

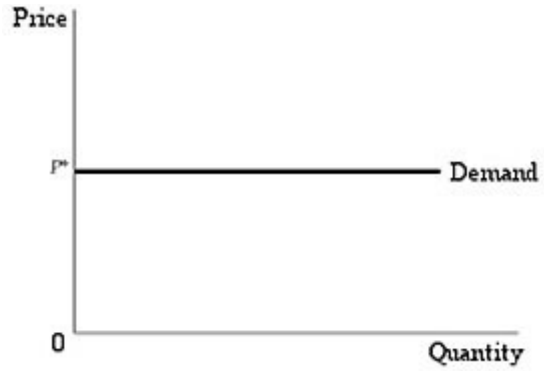

Figure 2.4.2

10) Refer to Figure 2.4.2 above. Which of the following best describes de demand curve in this figure?
A) Demand is infinitely elastic.
B) Demand is completely inelastic.
C) Demand becomes more inelastic the lower the price.
D) Demand becomes more elastic the lower the price.
Answer: A
Diff: 1
Section: 2.4

11) Refer to Figure 2.4.2 above. Fill in the blanks. For any price higher than *P**, the quantity demanded _____, while for any price lower than *P**, the quantity demanded _____.
A) drops to zero; increases without limit
B) drops to zero; remains constant
C) increases without limit; does not exist
D) does not exist; is unpredictable
Answer: A
Diff: 2
Section: 2.4

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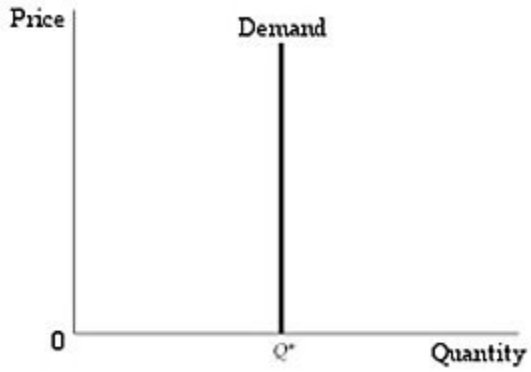

Figure 2.4.3

12) Refer to Figure 2.4.3 above. Which of the following best describes de demand curve in this figure?
A) Demand is infinitely elastic.
B) Demand is completely inelastic.
C) Demand becomes more inelastic the lower the price.
D) Demand becomes more elastic the lower the price.
Answer: B
Diff: 1
Section: 2.4

13) Refer to Figure 2.4.3 above. The price elasticity of demand along this demand curve is equal to:
A) whatever the value of the price is.
B) infinity.
C) zero.
D) an undetermined value.
Answer: C
Diff: 1
Section: 2.4

14) The income elasticity of demand refers to:
A) a change in income following a change in quantity demanded.
B) the substitution of one good for another as income changes.
C) the percentage change in quantity demanded resulting from a 1-percent increase in income.
D) the change in income required for quantity demanded to change by 1%.
Answer: C
Diff: 1
Section: 2.4

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15) Which of the following represents the income elasticity of demand?

A) $\dfrac{\left(\dfrac{\Delta Q}{I}\right)}{\left(\dfrac{\Delta I}{Q}\right)}$

B) $\left(\dfrac{\Delta Q}{I}\right) + \left(\dfrac{\Delta I}{Q}\right)$

C) $\left(\dfrac{\Delta Q}{\Delta I}\right) \times \left(\dfrac{I}{Q}\right)$

D) $\left(\dfrac{\Delta Q}{I}\right) - \left(\dfrac{\Delta I}{Q}\right)$

Answer: C
Diff: 2
Section: 2.4

16) The cross-price elasticity of demand refers to:
A) a change in the demanded for two goods, following a change in the price of one good.
B) the substitution of one good for another as the prices of two goods change.
C) the value of price elasticity at which supply crosses demand.
D) the percentage change in the quantity demanded of one good resulting from a 1-percent increase in the price of another good.
Answer: D
Diff: 1
Section: 2.4

17) The price elasticity of supply refers to:
A) a change in the supply of one good when prices in the economy change.
B) the substitution of one productive activity for another based on price changes that favor the production of certain goods.
C) the responsiveness of suppliers to changes in economic variables, except price.
D) the percentage change in the quantity supplied of one good resulting from a 1-percent increase in the price of that good.
Answer: D
Diff: 1
Section: 2.4

18) If two goods are substitutes, the cross-price elasticity of demand must be:
A) negative.
B) positive.
C) zero.
D) infinite.
Answer: B
Diff: 1
Section: 2.4

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19) The cross-price elasticity of demand for peanut butter with respect to the price of jelly is -0.3. If we expect the price of jelly to decline by 15%, what is the expected change in the quantity demanded for peanut butter?
A) +15%
B) +45%
C) +4.5%
D) -4.5%
Answer: C
Diff: 1
Section: 2.4

20) For U.S. consumers, the income elasticity of demand for fruit juice is 1.1. If the economy enters a recession next year and consumer income declines by 2.5%, what is the expected change in the quantity of fruit juice demanded next year?
A) -2.75%
B) +2.75%
C) -27.5%
D) +27.5%
Answer: A
Diff: 1
Section: 2.4

21) The price elasticity of gasoline supply in the U.S. is 0.4. If the price of gasoline rises by 8%, what is the expected change in the quantity of gasoline supplied in the U.S.?
A) +3.2%
B) -3.2%
C) +32.0%
D) +0.32%
Answer: A
Diff: 1
Section: 2.4

22) Suppose the U.S. demand curve for gasoline shifts rightward, and the U.S. supply curve for gasoline remains unchanged. As a result, the price of gasoline increases by 9 percent, and the equilibrium quantity increases by 3 percent. Which of the following statements is true based on this information?
A) The price elasticity of supply for gasoline is roughly 0.33.
B) The price elasticity of supply for gasoline is roughly 3.
C) The price elasticity of demand for gasoline is roughly 0.33.
D) The price elasticity of demand for gasoline is roughly -3.
Answer: A
Diff: 1
Section: 2.4

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23) Suppose the market price for wheat changes, and we move from point A to point B on the wheat demand curve. If the price elasticity of wheat demand was -0.3 at point A and -0.4 at point B, what is a plausible value for the arc elasticity of demand for wheat between points A and B?
A) -0.25
B) -0.35
C) -0.45
D) -0.70
Answer: B
Diff: 2
Section: 2.4

24) Harding Enterprises has developed a new product called the Gillooly Shillelagh. The market demand for this product is given as follows:

$$Q = 240 - 4P$$

a. At what price is the price elasticity of demand equal to zero?
b. At what price is demand infinitely elastic?
c. At what price is the price elasticity of demand equal to one?
d. If the shillelagh is priced at $40, what is the point price elasticity of demand?

Answer: ***a.***
The demand curve given in this problem is linear. The intercepts of the inverse demand curve on the price and quantity axes are $60 and 240 respectively. The price elasticity of demand varies along the length of this demand curve. Demand is infinitely elastic at the intercept on the price axis. Demand is completely inelastic at the intercept on the quantity axis. Demand is unit elastic at the half-way point between these two extremes. Thus, the price elasticity of demand equals zero (is completely inelastic) at a price of zero.

b.
Demand is infinitely elastic at a price of $60.

c.
The price elasticity of demand equals one at a price of $30.

d.
The price elasticity of demand equals $\left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right)$. If P equals $40, Q equals 80. $\left(\frac{\Delta Q}{\Delta P}\right)$ is constant along a linear demand curve. In this case it equals -4. Therefore, the price elasticity of demand equals $(40/80)(-4) = -2$.
Diff: 2
Section: 2.4

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25) The demand for a bushel of wheat in 1981 was given by the equation $Q_D = 3550 - 266P$. At a price of \$3.46 per bushel, what is the price elasticity of demand? If the price of wheat falls to \$3.27 per bushel, what happens to the revenue generated from the sale of wheat?
Answer: At a price of \$3.46 per bushel, the quantity demanded for wheat is 2,629.64 bushels of wheat. At a price of \$3.27 per bushel, the quantity demanded for wheat is 2,680.18. The price elasticity of demand at \$3.46 is $E_D = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{3.46}{2{,}629.64}\right)\left(\frac{50.54}{-0.19}\right) = -0.35$. At a price of \$3.46 per bushel, the revenue generated from the sale of wheat is \$12,558.554. At a price of \$3.27 per bushel, the revenue generated from the sale of wheat is \$8,764.1886. Wheat revenue drops by \$3,794.366 when price decreases from \$3.46 to \$3.27 per bushel, which is expected when prices decline along the inelastic portion of a demand curve.
Diff: 2
Section: 2.4

26) The demand for packs of Pokemon cards is given by the equation $Q_D = 500{,}000 - 45{,}000P$. At a price of \$2.50 per pack, what is the quantity demanded? At \$5.00 per pack, what is the price elasticity of demand?
Answer: At a price of \$2.50 per pack, the quantity demanded is 387,500 packs of cards. At a price of \$5.00 per pack, the quantity demanded is 275,000. At \$5.00 per pack, the price elasticity of demand is $E_D = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{5}{275{,}000}\right)\left(\frac{-112{,}500}{2.50}\right) = -0.818.$
Diff: 1
Section: 2.4

27) The monthly supply of desktop personal computers is given by the equation $Q_S = 15{,}000 + 43.75P$. At a price of \$800, what is the price elasticity of supply?
Answer: At a price of \$800, the quantity supplied is 50,000. The price elasticity of supply is $E_S = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{800}{50{,}000}\right)(43.75) = 0.7$
Diff: 1
Section: 2.4

28) The demand for tickets to the Daytona 500 NASCAR event is given by the equation $Q_D = 350{,}000 - 800P$. The supply of tickets to the event is given by the capacity of the Daytona track, which is 150,000. What is the equilibrium price of tickets to the event? What is the price elasticity of demand at the equilibrium price? What is the price elasticity of supply at the equilibrium price?
Answer: Consumers are willing to pay $P = \frac{200{,}000}{800} = \$250 \text{ per ticket.}$ The price elasticity of demand at \$250 is $E_D = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{250}{150{,}000}\right)(-800) = -1\frac{1}{3}$. The price elasticity of supply is $E_S = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{250}{150{,}000}\right)(0) = 0.$
Diff: 2
Section: 2.4

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2.5 Short-Run versus Long-Run Elasticities

1) Which of the following terms refers to price elasticity of demand calculated over a range of prices?
A) Cross-price elasticity of demand
B) Arc elasticity of demand
C) Point elasticity of demand
D) Unit elasticity
Answer: B
Diff: 1
Section: 2.5

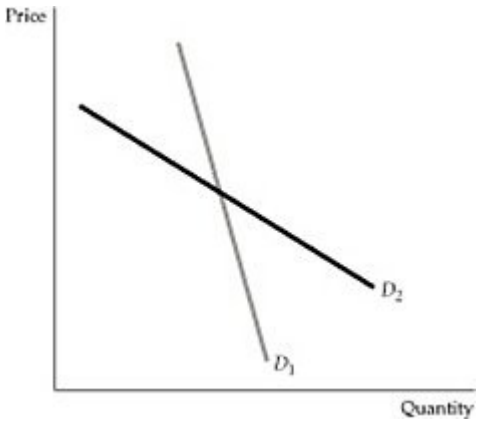

Figure 2.5.1

2) Refer to Figure 2.5.1 above. If close substitutes are difficult to find in the short run, which of the demand curves in the figure best represents market demand in the short run?
A) D_1
B) D_2
C) Both curves are short-run curves.
D) Both curves are long-run curves.
Answer: A
Diff: 1
Section: 2.5

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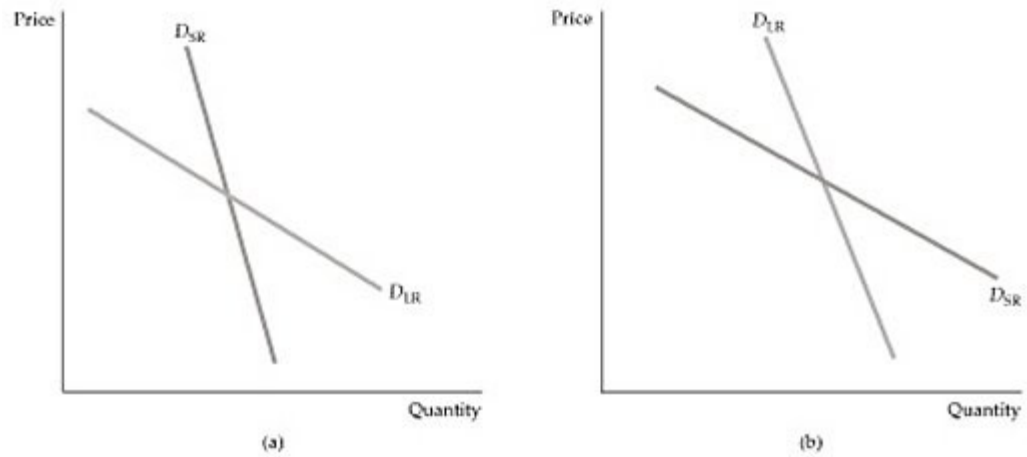

Figure 2.5.2

3) Refer to Figure 2.5.2 above. Which of the following best represents the demand for cars in the short run (SR) and in the long run (LR)?
A) Panel A.
B) Panel B
C) None of the above. Both are perfectly elastic.
D) None of the above. Both are perfectly inelastic.
Answer: A
Diff: 1
Section: 2.5

4) For automobile demand in the U.S., the income response tends to be larger in the:
A) short run.
B) long run.
C) The income response is the same in the long run and the short run.
D) We do not have enough information to answer this question.
Answer: A
Diff: 1
Section: 2.5

5) Due to capacity constraints, the price elasticity of supply for most products is:
A) the same in the long run and the short run.
B) greater in the long run than the short run.
C) greater in the short run than in the long run.
D) too uncertain to be estimated.
Answer: B
Diff: 1
Section: 2.5

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6) In the long run, new firms can enter an industry and so the supply elasticity tends to be:
A) more elastic than in the short run.
B) less elastic than in the short run.
C) perfectly elastic.
D) perfectly inelastic.
Answer: A
Diff: 1
Section: 2.5

7) A freeze in Florida's orange growing regions will:
A) result in a sharp increase in the price of oranges in the short run because demand and supply are highly inelastic.
B) result in a sharp increase in the price of oranges in the short run because demand and supply are highly elastic.
C) result in a sharp decrease in the price of oranges in the short run because demand is highly inelastic and supply is highly elastic.
D) result in little change in the price of oranges in the short run because supply is infinitely elastic.
Answer: A
Diff: 2
Section: 2.5

8) According to the textbook, for most goods and services–foods, beverages, entertainment, etc.–the income elasticity of demand is:
A) larger in the long run than in the short run.
B) about the same in the short run and in the long run.
C) larger in the short run than in the long run.
D) is difficult to differentiate from the short run to the long run.
Answer: A
Diff: 2
Section: 2.5

9) According to the textbook, the income elasticity of demand is:
A) much smaller in the short run than in the long run.
B) much larger in the short run than in the long run.
C) about the same in the short run and in the long run.
D) is difficult to differentiate from the short run to the long run.
Answer: B
Diff: 2
Section: 2.5

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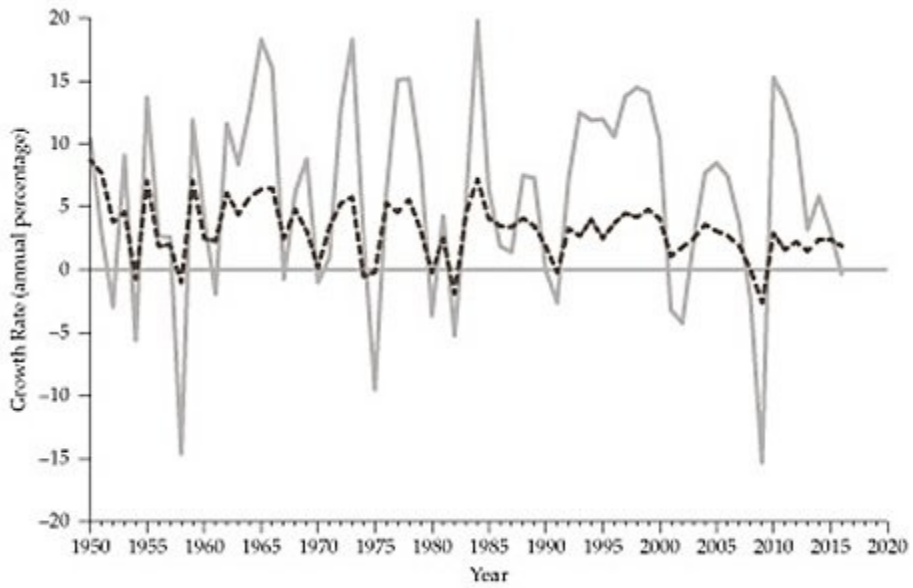

Figure 2.5.3

10) Refer to Figure 2.5.3 above. The graph , as it appears in the textbook, shows two series, each corresponding to a growth rate. The dashed trend series corresponds to:
A) the growth rate of durable equipment.
B) the growth rate of GDP.
C) The growth rate of non-durable goods.
D) the growth rate of labor productivity.
Answer: B
Diff: 1
Section: 2.5

11) An industry in which sales tend to magnify cyclical changes in gross domestic product and national income is called:
A) a cyclical industry.
B) a counter-cyclical industry.
C) a fluctuating industry.
D) a dismal industry.
Answer: A
Diff: 1
Section: 2.5

12) For computers and other business equipment, small changes in business earnings tend to generate relatively large short-run changes in the demand for this equipment, and the long-run income response tends to be smaller. Industries that face demand behavior of this type are known as:
A) natural monopolies.
B) cartels.
C) cyclical industries.
D) constant-cost industries.
Answer: C
Diff: 2
Section: 2.5

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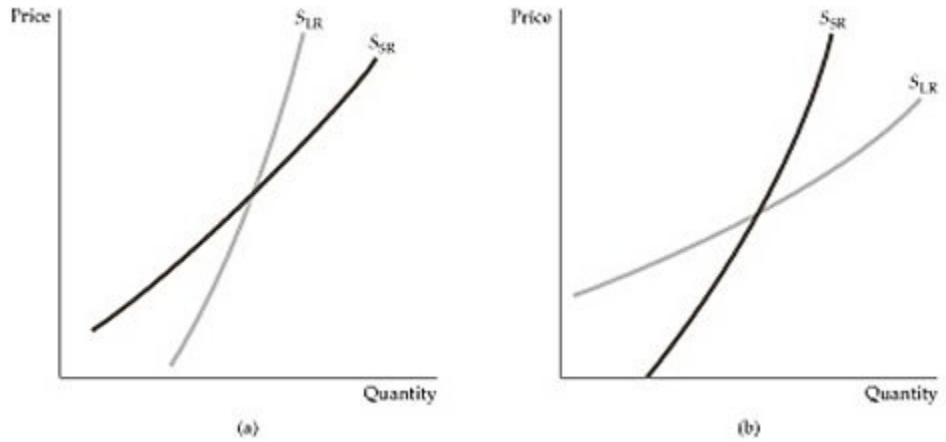

Figure 2.5.4

13) Refer to Figure 2.5.4 above. The figure depicts the supply curves in the short run (SR) and long run (LR) for two types of copper: primary and secondary. Which panel best resembles the supply curves for primary copper?
A) A
B) B
C) Both. There are no differences.
D) Neither. The supply curves in that industry are downward sloping.
Answer: B
Diff: 2
Section: 2.5

14) The secondary supply of copper is:
A) more elastic in the short run than in the long run.
B) less elastic in the short run than in the long run.
C) equally elastic in the short run and in the long run.
D) unit elastic in the short run and perfectly elastic in the long run.
Answer: A
Diff: 2
Section: 2.5

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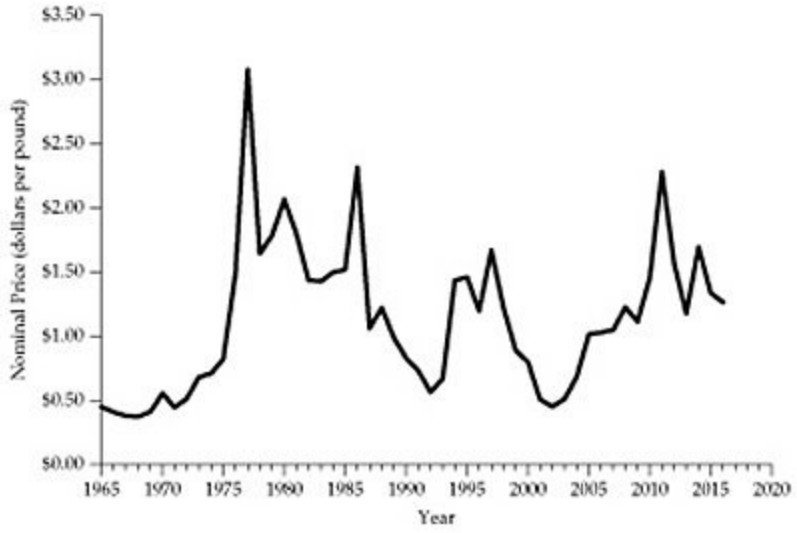

Figure 2.5.5

15) Refer to Figure 2.5.5 above. The textbook attributes the changes in the price of coffee in New York to:
A) worldwide swings in coffee demand.
B) changes in income and preferences.
C) droughts in Brazil.
D) changes in speculative demand.
Answer: C
Diff: 2
Section: 2.5

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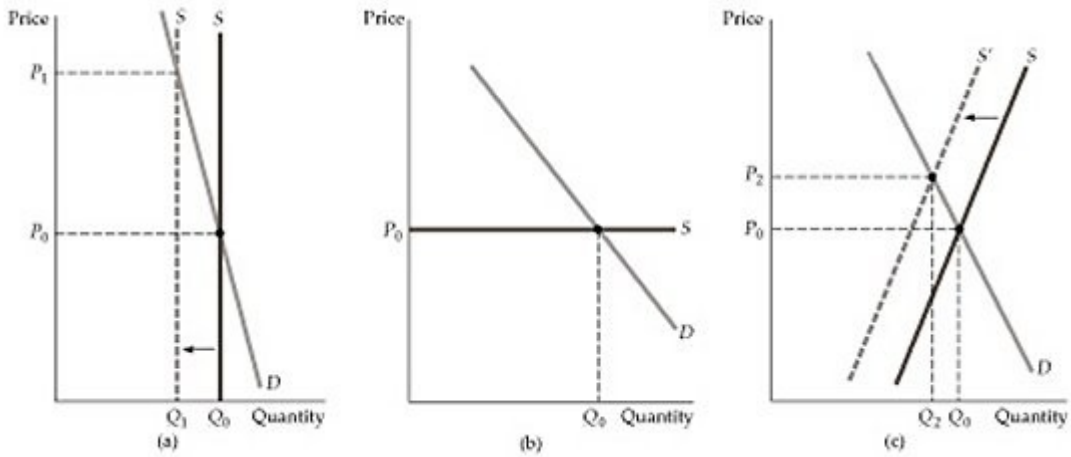

Figure 2.5.6

16) Refer to Figure 2.5.6. Which of the following best represents the market for coffee in the intermediate run?
A) A
B) B
C) C
D) None of the above.
Answer: C
Diff: 2
Section: 2.5

17) Refer to Figure 2.5.6. Which of the following best represents the market for coffee in the long run?
A) A
B) B
C) C
D) None of the above.
Answer: B
Diff: 2
Section: 2.5

2.6 Understanding and Predicting the Effects of Changing Market Conditions

1) In order to fit linear supply and demand curves to data, we need to find the parameters, *a*, *b*, *c*, and *d*, of the corresponding functions. One procedure for finding those values uses the known values of:
A) the demand equation and income elasticity of demand.
B) the price and quantity of equilibrium and the elasticities of supply and demand.
C) any two known values of price and quantity and income elasticity of demand.
D) the price elasticity of demand and supply and the income elasticity of demand.
Answer: B
Diff: 1
Section: 2.6

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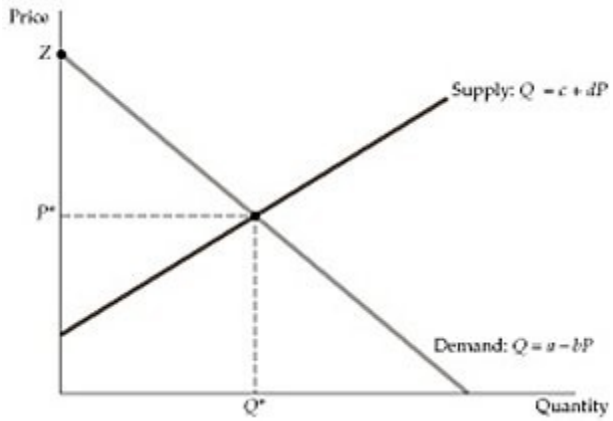

Figure 2.6.1

2) Refer to Figure 2.6.1 above. Which of the following is a proper value for Z in the vertical axis?
A) the value of the parameter *a*
B) *a*/*b*
C) –*a*/*b*
D) -*b*
Answer: B
Diff: 1
Section: 2.6

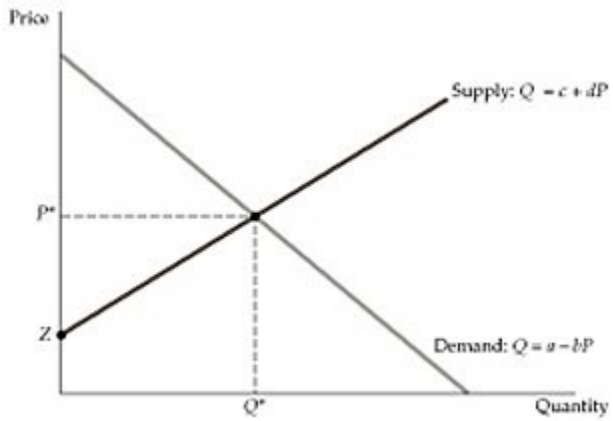

Figure 2.6.2

3) Refer to Figure 2.6.2 above. Which of the following is a proper value for Z in the vertical axis?
A) the value of the parameter *c*
B) *c*/*d*
C) –*c*
D) –*c*/*d*
Answer: D
Diff: 1
Section: 2.6

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4) When demand is written as $Q = a - bP$, and P^* and Q^* are the equilibrium values for price and quantity, which of the following is the value of the price elasticity of demand, E_D?

A) $-a(P^*/Q^*)$
B) $-b(P^*/Q^*)$
C) $-a/b$
D) $-b/a$
Answer: B
Diff: 1
Section: 2.6

5) When supply is written as $Q = c + dP$ and P^* and Q^* are the equilibrium values for price and quantity, which of the following is the value of the price elasticity of supply, E_S?

A) $c(P^*/Q^*)$
B) $d(P^*/Q^*)$
C) $-c/d$
D) $-d/c$
Answer: B
Diff: 1
Section: 2.6

6) A simple linear demand function may be stated as Q = a - bP + cI where Q is quantity demanded, P is the product price, and I is consumer income. To compute an appropriate value for c, we can use observed values for Q and I and then set the estimated income elasticity of demand equal to:
A) c(I/Q).
B) c(Q/I).
C) -b(I/Q).
D) Q/(cI).
Answer: A
Diff: 2
Section: 2.6

7) A simple linear demand function may be stated as Q = a - bP + cI where Q is quantity demanded, P is the product price, and I is consumer income. To compute an appropriate value for b, we can use observed values for Q and P and then set -b(P/Q) equal to the:
A) income elasticity of demand.
B) cross-price elasticity of demand.
C) price elasticity of demand.
D) price elasticity of supply.
Answer: C
Diff: 2
Section: 2.6

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8) Suppose the observed annual quantity of steel exchanged in the European market is 30 million metric tons, and the observed market price is 90 euros per ton. If the price elasticity of demand for steel is -0.3 in Europe, what is an appropriate value for the price coefficient (b) in a linear demand function $Q = a - bP$?

A) b = 0.9
B) b = -0.9
C) b = 0.1
D) b = -0.1
Answer: A
Diff: 1
Section: 2.6

9) Suppose the observed annual quantity of steel exchanged in the European market is 30 million metric tons, and the observed market price is 90 euros per ton. If the linear demand function for steel takes the form Q = a - 0.9P, what is an appropriate value for the intercept coefficient a?

A) a = -51
B) a = 51
C) a = 111
D) a = -111
Answer: C
Diff: 2
Section: 2.6

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10) Midcontinent Plastics makes 80 fiberglass truck hoods per day for large truck manufacturers. Each hood sells for $500.00. Midcontinent sells all of its product to the large truck manufacturers. Suppose the own price elasticity of demand for hoods is 0.4 and the price elasticity of supply is 1.5.

a. Compute the slope and intercept coefficients for the linear supply and demand equations.
b. If the local county government imposed a per unit tax of $25.00 per hood manufactured, what would be the new equilibrium price of hoods to the truck manufacturer?
c. Would a per unit tax on hoods change the revenue received by Midcontinent?
Answer: Given:

$P^* = \$500$ $\quad$ $Q^* = 80$ hoods per day
$E_d = -0.40$ $\quad$ $E_s = 1.5$

a.

Demand: $Q_d = a_0 + a_1P$ $\quad$ Supply: $Q_s = b_0 + b_1P$

Use $E = \frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$ to compute a_1 and b_1.

$-0.4 = \frac{500}{80}a_1$ $\quad$ $1.5 = \frac{500}{80}b_1$

$a_1 = -0.064$ $\quad$ $b_1 = 0.24$

Solve for a_0 and b_0.

$Q_d = a_0 + a_1P$ $\quad$ $Q_s = b_0 + b_1P$
$80 = a_0 + -0.064(500)$ $\quad$ $80 = b0 + 0.24(500)$
$a_0 = 112 b_0 = -40$
$Q_d = 112 - 0.064P$ $\quad$ $Q_s = -40 + 0.24P$

b.

The tax represents a price increase to the purchaser regardless of the current price. Thus, the supply curve will be adjusted vertically upward by $25.

$Q_s = -40 + 0.24P$ or
$P = 166.67 + 4.17\ Q_s$, then
$P_t = P + \$25 = 166.67 + 25 + 4.17Q_s$
$P_t = 191.67 + 4.17Q_s$ or
$Q_s = -45.96 + 0.24P$

The new equilibrium price will be:

New Supply = Demand
$Q_s = -45.96 + 0.24P = 112 - 0.064P = Q_d$

Solving yields P = $519.60 per truck hood.

c.

Since the new selling price in (c) is $519.60 and the tax is $25 per hood, Midcontinent would receive only $494.6 per hood. As quantity sold has fallen too, revenues would fall.

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Diff: 3
Section: 2.6

11) Suppose that a small market Major League Baseball team currently charges $12 for a ticket. At this price, they are able to sell 12,000 tickets to each game. If they raise ticket prices to $15, they would sell 11,053 tickets to each game. What is the price elasticity of demand at $12? If the demand curve is linear, what is the algebraic expression for demand?
Answer: The price elasticity of demand is $E = \left(\frac{P}{Q}\right)\left(\frac{\triangle Q}{\triangle P}\right) = \left(\frac{12}{12{,}000}\right)\left(\frac{-947}{3}\right) = -0.316.$ If the demand curve is linear, it is in the form of $Q_D = a + bP$. Also, we know that
$E = b\left(\frac{P}{Q}\right) \Leftrightarrow b = E\left(\frac{Q}{P}\right) = -0.316\left(\frac{12{,}000}{12}\right) = -316.$ Rearranging the linear expression for demand allows us to solve for a as follows: $a = Q_D - bP \Rightarrow a = 12{,}000 + 316(12) = 15{,}792.$ We may now write the linear expression for demand as $Q_D = 15{,}792 - 316P.$
Diff: 2
Section: 2.6

12) Suppose that the short-run world demand and supply elasticities for crude oil are -0.076 and 0.088, respectively. The current price per barrel is $30 and the short-run equilibrium quantity is 23.84 billion barrels per year. Derive the linear demand and supply equations.
Answer: If the demand curve is linear, it is in the form of $Q_D = a + bP$ Also, we know that
$E = b\left(\frac{P}{Q}\right) \Leftrightarrow b = E\left(\frac{Q}{P}\right) = -0.076\left(\frac{23.84}{30}\right) = -0.060.$ Rearranging the linear expression for demand allows us to solve for a as follows: $a = Q_D - bP \Rightarrow a = 23.84 + 0.060(30) = 25.640.$ We may now write the linear expression for demand as $Q_D = 25.640 - 0.060P.$ If the supply curve is linear, it is in the form of $Q_S = c + dP.$ Also, we know that $E = d\left(\frac{P}{Q}\right) \Leftrightarrow d = E\left(\frac{Q}{P}\right) = 0.088\left(\frac{23.84}{30}\right) = 0.070.$ Rearranging the linear expression for demand allows us to solve for c as follows: $c = Q_S - \mathrm{dP} \Rightarrow c = 23.84 - 0.070(30) = 21.740.$ We may now write the linear expression for supply as $Q_S = 21.740 + 0.070P.$
Diff: 2
Section: 2.6

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13) Suppose that the long-run world demand and supply elasticities of crude oil are -0.906 and 0.515, respectively. The current long-run equilibrium price is $30 per barrel and the equilibrium quantity is 16.88 billion barrels per year. Derive the linear long-run demand and supply equations. Next, suppose the long-run supply curve you derived above consists of competitive supply and OPEC supply. If the long-run competitive supply equation is: $S_C = 7.78 + 0.29P$, what must be OPEC's level of production in this long-run equilibrium?

Answer: If the demand curve is linear, it is in the form of $Q_D = a + bP$. Also, we know that $E = b\left(\frac{P}{Q}\right) \Leftrightarrow b = E\left(\frac{Q}{P}\right) = -0.906\left(\frac{16.88}{30}\right) = -0.510$. Rearranging the linear expression for demand allows us to solve for a as follows: $a = Q_D - bP \Rightarrow a = 16.88 + 0.510(30) = 32.180$. We may now write the linear expression for demand as $Q_D = 32.18 - 0.510P$. If the supply curve is linear, it is in the form of $Q_S = c + dP$. Also, we know that $E = d\left(\frac{P}{Q}\right) \Leftrightarrow d = E\left(\frac{Q}{P}\right) = 0.515\left(\frac{16.88}{30}\right) = 0.290$. Rearranging the linear expression for demand allows us to solve for c as follows: $c = Q_S - dP \Rightarrow c = 16.88 - 0.290(30) = 8.18$. We may now write the linear expression for supply as $Q_S = 8.18 + 0.290P$. OPEC's supply is the difference between the world supply and competitive supply at $30. We know that world supply at $30 is 16.88. Competitive supply at $30 is $7.78 + 0.29(30) = 16.48$. This implies that OPEC's supply is 0.4 billion barrels per year at $30 in this long-run equilibrium.

Diff: 3

Section: 2.6

2.7 Effects of Government Intervention–Price Controls

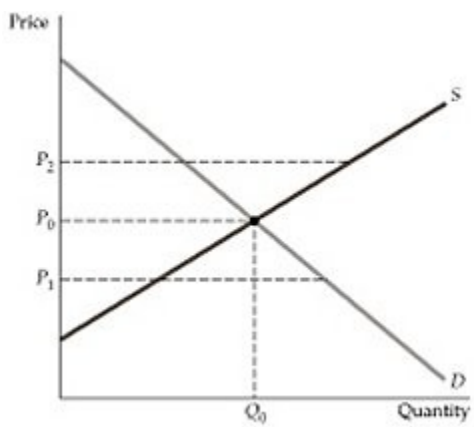

Figure 2.7.1

1) Refer to Figure 2.7.1 above. If the government wants to set a *maximum* imposed price on this market, it will set the price at:

A) P_0

B) P_1

C) P_2

D) Either P_1 or P_2

Answer: B

Diff: 1

Section: 2.7

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2) Refer to Figure 2.7.1. Which of the price levels in the figure will result in a shortage?
A) P_0
B) P_1
C) P_2
D) Either P_1 or P_2
Answer: B
Diff: 1
Section: 2.7

3) When the government controls the price of a product, causing the market price to be above the free market equilibrium price,
A) all producers gain.
B) both producers and consumers gain.
C) only consumers gain.
D) some, but not all, sellers can find buyers for their goods.
Answer: D
Diff: 1
Section: 2.7

4) When the government controls the price of a product, causing the market price to be below the free market equilibrium price,
A) some consumers gain from the price controls and other consumers lose.
B) all producers gain from the price controls.
C) both producers and consumers gain.
D) all consumers are better off.
Answer: A
Diff: 1
Section: 2.7

5) Suppose that, at the market clearing price of natural gas, the price elasticity of demand is -1.2 and the price elasticity of supply is 0.6. What will result from a price ceiling that is 10 percent below the market clearing price?
A) A shortage equal to 1.8 percent of the market clearing quantity
B) A shortage equal to 0.6 percent of the market clearing quantity
C) A shortage equal to 18 percent of the market clearing quantity
D) A shortage equal to 6 percent of the market clearing quantity
E) More information is needed.
Answer: C
Diff: 2
Section: 2.7

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6) What happens if price falls below the market clearing price?
A) Demand shifts out.
B) Supply shifts in.
C) Quantity demanded decreases, quantity supplied increases, and a surplus results.
D) Quantity demanded increases, quantity supplied decreases, and a shortage results.
Answer: D
Diff: 1
Section: 2.7

7) A price floor policy establishes a minimum price for a market. Which of the following results from a binding price floor?
A) Equilibrium
B) Excess demand
C) Excess supply
D) Shortage
Answer: C
Diff: 1
Section: 2.7

8) Other things being equal, the increase in rents that occurs after rent controls are abolished is smaller when:
A) the own price elasticity of demand for rental homes is price inelastic.
B) the own price elasticity of demand for rental homes is price elastic.
C) the own price elasticity of demand for rental homes has unitary price elasticity.
D) rented homes and owned homes are complements.
E) rented homes and owned homes are substitutes.
Answer: B
Diff: 2
Section: 2.7

9) Suppose the U.S. government imposes a maximum price of $5 per gallon of gasoline, and the current equilibrium price is $3.50 per gallon. This policy represents a:
A) binding price floor.
B) non-binding price floor.
C) binding price ceiling.
D) non-binding price ceiling.
Answer: D
Diff: 1
Section: 2.7

10) Which of the following public policies is an example of a price ceiling?
A) Support prices for agricultural commodities
B) Minimum wage laws
C) Rent control program
D) all of the above
Answer: C
Diff: 1
Section: 2.7

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11) A price floor policy establishes a minimum price for a market, and the policy is said to be binding if the market equilibrium price is less than the floor price. What impact does a binding price floor have on the market outcome?
A) Excess supply
B) Excess demand
C) Shortage
D) No impact, and the market price and quantity equal their equilibrium values
Answer: A
Diff: 1
Section: 2.7

12) Suppose the supply of coal is perfectly inelastic, and the price elasticity of demand for coal is -0.4. If the government imposes a binding price ceiling for coal at a price that is 20 percent below the market equilibrium price, what is the impact of this policy on the market quantity?
A) Excess demand equals 80 percent of the market equilibrium quantity.
B) Excess demand equals 8 percent of the market equilibrium quantity.
C) Excess demand equals 16 percent of the market equilibrium quantity.
D) The policy does not affect the market quantity.
Answer: B
Diff: 2
Section: 2.7

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13) The U.S. Department of Agriculture is interested in analyzing the domestic market for corn. The USDA's staff economists estimate the following equations for the demand and supply curves:

$Q_d = 1{,}600 - 125P$

$Q_s = 440 + 165P$

Quantities are measured in millions of bushels; prices are measured in dollars per bushel.

a. Calculate the equilibrium price and quantity that will prevail under a completely free market.
b. Calculate the price elasticities of supply and demand at the equilibrium values.
c. The government currently has a $4.50 bushel support price in place. What impact will this support price have on the market? Will the government be forced to purchase corn under a program that requires them to buy up any surpluses? If so, how much?

Answer:

a.

Set $Q_d = Q_s$ to determine price.

$1600 - 125P = 440 + 165P$

$1160 = 290P$

$P = 4$

Obtain Q by substituting into either expression.

$Q_d = 1600 - 125(4)$

$Q_d = 1600 - 500$

$Q = 1100$

$P^* = \$4$, $Q^* = 1100$

b.

For the Own Price Elasticity of Demand $E = -125 \times \frac{4}{1100} = -0.45$ (approximately)

For the Own Price Elasticity of Supply $E = -165 \times \frac{4}{1100} = 0.60$

c.

Calculate Q_d and Q_s at the $4.50 price.

$Q_d = 1600 - 125(4.5)$

$Q_d = 1037.5$

$Q_s = 440 + 165(4.5)$

$Q_s = 1182.5$

surplus = $Q_s - Q_d = 1182.5 - 1037.5 = 145$

The support price would create an excess supply of 145 million bushels that the government would be forced to buy.

Diff: 2

Section: 2.7

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14) The market for gravel has been estimated to have these supply and demand relationships:

Supply $P = 10 + 0.01Q$

Demand $P = 100 - 0.01Q$,

where P represents price per unit in dollars, and Q represents sales per week in tons. Determine the equilibrium price and sales. Determine the amount of shortage or surplus that would develop at P = $40/ton.

Answer: The equilibrium price can be found by equating S to D in terms of Q.

$10 + 0.01Q = 100 - 0.01Q$

$0.02Q = 90$

$Q = 4{,}500$ tons/week

$P = 10 + 0.01(4{,}500) = \$55/\text{ton}$

At P = $40/ton, the quantity demanded is:

$40 = 100 - 0.01Q$

$Q = 6{,}000$ tons/week

The quantity supplied is:

$40 = 10 + 0.01Q$

$Q = 3{,}000$ tons/week

The shortage is 3,000 tons/week.

Diff: 2

Section: 2.7

15) American Mining Company is interested in obtaining quick estimates of the supply and demand curves for coal. The firm's research department informs you that the elasticity of supply is approximately 1.7, the elasticity of demand is approximately -0.85, and the current price and quantity are $41 and 1,206, respectively. Price is measured in dollars per ton, quantity the number of tons per week.

a. Estimate linear supply and demand curves at the current price and quantity.

b. What impact would a 10% increase in demand have on the equilibrium price and quantity?

c. If the government refused to let American raise the price when demand increased in (b) above, what shortage is created?

Answer:

a.

First we estimate the demand curve.

$Q = a_0 - b_0P$

Elasticity of demand $= b_0 \times \frac{P}{Q}$

$.85 = b_0 \times \frac{41}{1206}$

$-1025.1 = b_0 \times 41$

$b_0 = 25$

$Q = a_0 - b_0P$

$1206 = a_0 - 25(41)$

$1206 = a_0 - 1025$

$a_0 = 2231$

$Q_0 = 2231 - 25P$

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Next, we estimate the supply curve.

$Q = a_1 + b_1P$

Elasticity of Supply = $b_1 \times \frac{P}{Q}$

$1.7 = b_1 \times \frac{41}{1206}$

$2050.2x = b_1 \times 41$

$b_1 = 50$

$Q = a_1 + b_1P$

$1206 = a_1 + 50(41)$

$a_1 = -844$

$Q_s = -844 + 50P$

Check to see if correct:

Set $Q_s = Q_d$

$2231 - 25P = -844 + 50P$

$3075 = 75P$

$P = 41$

The equations are correct.

b.

Multiply demand equation by 1.10.

$1.10\ (2231 - 25P)$

$Q_d' = Q_s$ and solve

$Q_s = -844 + 50P$

Set $Q_d' = Q_s$ and solve.

$2454.1 - 27.5P = -844 + 50P$

$3298.1 = 77.5P$

$P = 42.56$

Substitute P into Q_d' to find quantity demanded.

$Q_d' = 2454.1 - 27.5(42.56)$

$Q_d' = 1283.7$ or 1284

c.

Since price cannot rise, the shortage will be the quantity demanded with the new demand minus the quantity supplied with the unchanged supply.

Quantity demanded: $Q = 2454.1 - 27.5(41) = 1326.6$

Quantity supplied: $Q = -844 + 50(41) = 1206.0$

Shortage = 1326.6 - 1206.0 = 120.6 tons per week.

Diff: 3
Section: 2.7

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16) In a city with a medium-sized population, the equilibrium price for a city bus ticket is $1.00, and the number of riders each day is 10,800. The short-run price elasticity of demand is -0.60, and the short-run elasticity of supply is 1.0.

a. Estimate the short run linear supply and demand curves for bus tickets.
b. If the demand for bus tickets increased by 10% because of a rise in the world price of oil, what would be the new equilibrium price of bus tickets?
c. If the city council refused to let the bus company raise the price of bus tickets after the demand for tickets increases (see (b) above), what daily shortage of tickets would be created?
d. Would the bus company have an incentive to increase the supply in the long run given the city council's decision in (c) above? Explain your answer.

Answer: Given:

$P^* = \$1.00$ per ticket $\quad Q^* = 10{,}800$

$E_d = -0.60 \quad E_s = 1.0$

a.

Demand: $Q_d = a_0 + a_1P$ Supply: $Q_s = b_0 + b_1P$

Use: $E = \frac{P}{Q} \times \frac{\Delta Q}{\Delta P}$ to compute a_1 and b_1.

$E_d = \frac{1}{10{,}800}a_1$ $\qquad E_s = \frac{1}{10{,}800}b_1$

$-0.60 = \frac{1}{10{,}800}a_1$ $\qquad 1.0 = \frac{1}{10{,}800}b_1$

$a_1 = -6{,}480$ $\qquad b_1 = 10{,}800$

Solve for a_0 / $Q_d = a_0 + a_1P$ $\qquad$ Solve for b_0 / $Q_s = b_0 + b_1P$

$10{,}800 = a_0 - 6{,}480.00(1.0)$ $\qquad 10{,}800 = b_0 + 10{,}800.00(1.0)$

$a_0 = 17{,}280$ $\qquad b_0 = 0.0$

$Q_d = 17{,}280 - 6{,}480P$ $\qquad Q_s = 0.0 + 10{,}800P$

b.

New demand = $(1.10)Q_d = (17{,}280 - 6{,}480P)(1.10)$

$Q_d' = 19{,}008.00 - 7{,}128P$

Equate Q_d' to Q_s to get new equilibrium price.

$19{,}008 - 7{,}128P = 0.0 + 10{,}800\ P$

$P^* = \$1.06$ per ticket

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c.

The shortage would be the quantity demanded at P = $1.00 minus the quantity supplied at P=$1.00.

Q_d = 19,008 - 7,128($1.00) = 11,880

Q_s = 0.0 + 10,800($1.00) = 10,800

Shortage = 11,800 - 10,800 = 1,080 rides per day

d.

No. The bus company has no incentive to supply more than 10,800 rides per day, as long as the price is restricted at $1.00.

Diff: 3

Section: 2.7

17) The current price charged by a local movie theater is $8 per ticket. The concession stand at the theater averages $5 in revenue for each ticket sold. At the current ticket price, the theater typically sells 300 tickets per showing. If the theater raises ticket prices to $9, the theater will sell 270 tickets. What is the price elasticity of demand at $8? What happens to ticket revenue if the theater increases ticket prices to $9 from $8? What happens to concession revenue if the theater increases ticket prices? If the theater wants to maximize the sum of ticket and concession revenue, should they raise ticket prices to $9?

Answer: The price elasticity of demand at $8 is $E = \left(\frac{P}{Q}\right)\left(\frac{\Delta Q}{\Delta P}\right) = \left(\frac{8}{300}\right)\left(\frac{-30}{1}\right) = -0.8$. Initially, ticket revenue is $P*Q = \$8(300) = \$2,400$. If ticket prices are raised to $9, ticket revenue becomes $P*Q = \$9(270) = \$2,430$. Thus, if ticket prices are raised to $9, ticket revenue increases by $30. At $8, the concession stand will average $1,500 per movie showing. If ticket prices are raised to $9, the concession stand will average $1,350. Thus, concession stand revenues will fall on average by $150. If the theater wants to maximize the sum of ticket and concession revenue, they should not raise ticket prices to $9.

Diff: 3

Section: 2.7

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