

## Chapter 02

### Supply and Demand

#### Multiple Choice Questions

1. The relationship that shows how much buyers of a product want to buy at each possible price, holding fixed all other factors is called:
  - A. a demand curve.
  - B. elasticity of demand.
  - C. demand function.
  - D. an indifference curve.
2. Two products are substitutes if:
  - A. an increase in the price of one causes buyers to demand less of the other.
  - B. an increase in the price of one causes buyers to demand more of the other.
  - C. a decrease in the price of one causes buyers to demand more of the other.
  - D. individuals consume the goods together.
3. Two products are complements if:
  - A. a decrease in the price of one causes buyers to demand less of the other.
  - B. an increase in the price of one causes buyers to demand more of the other.
  - C. a decrease in the price of one causes buyers to demand more of the other.
  - D. individuals consume the goods together.

4. If an increase in the price of one good causes buyers to demand less of another good, then the two goods are:
- A. normal goods.
  - B. inferior goods.
  - C. substitutes.
  - D. complements.
5. If an increase in the price of one good causes buyers to demand more of another good, then the two goods are:
- A. normal goods.
  - B. inferior goods.
  - C. substitutes.
  - D. complements.

6. Refer to Figure 2.1. A movement from point *a* to point *b* is most likely caused by:

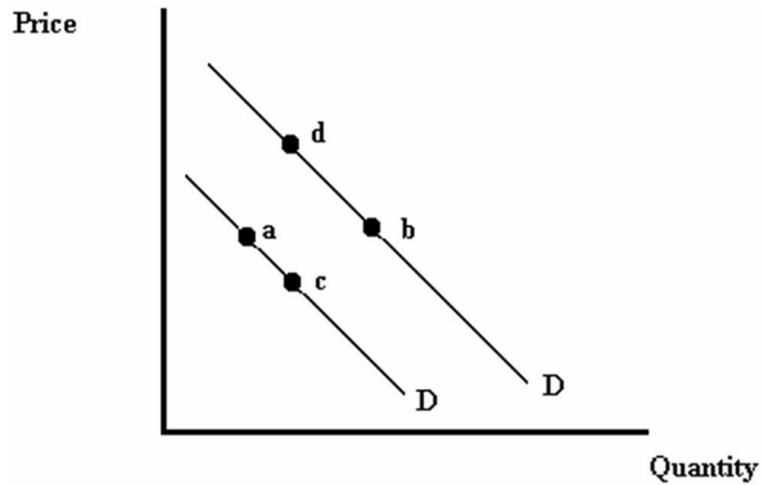


Figure 2.1

- A. a decrease in the price of the good.
- B. an increase in consumers' incomes, assuming the good is normal.
- C. an increase in the price of a complementary good.
- D. a decrease in consumers' incomes, assuming the good is normal.

7. Refer to Figure 2.1. A movement from point *a* to point *c* is most likely caused by:

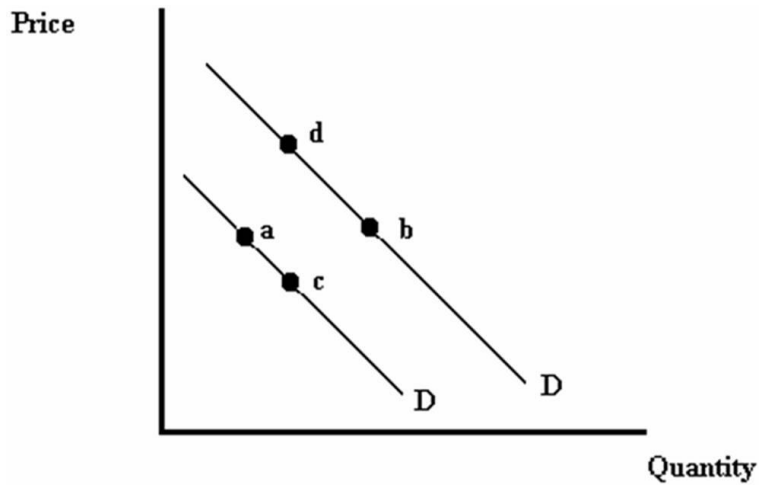


Figure 2.1

- A. a decrease in the price of the good.  
B. an increase in consumers' incomes, assuming the good is normal.  
C. a decrease in the price of a complementary good.  
D. an increase in the price of the good.
8. An increase in the price of a good is shown by a:
- A. rightward shift of the demand curve.  
B. leftward shift of the demand curve.  
C. movement up and to the left along the demand curve.  
D. movement down and to the right along the demand curve.

9. A change in demand of a good is shown by a:
- A. movement along a demand curve.
  - B. shift of a demand curve.
  - C. movement along the demand function.
  - D. shift of the demand function.
10. A product's \_\_\_\_\_ describes the amount of the product that is demanded for each possible combination of its price and other factors.
- A. demand curve
  - B. price-consumption curve
  - C. utility function
  - D. demand function
11. The effect of an increase in the price of gasoline on the demand for sport utility vehicles would be shown by a:
- A. rightward shift of the demand curve for sport utility vehicles.
  - B. leftward shift of the demand curve for sport utility vehicles.
  - C. movement up and to the left along the demand curve for sport utility vehicles.
  - D. movement down and to the right along the demand curve for sport utility vehicles.

12. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. If consumers' income is \$50,000 and the price of satellite TV service is \$90, then which of the following gives the demand curve for cable TV?
- A.  $Q_{CTV} = 17 - 0.25 \times P_{CTV}$
  - B.  $Q_{CTV} = 67 - 0.25 \times P_{CTV}$
  - C.  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$
  - D.  $Q_{CTV} = 13 - 0.25 \times P_{CTV}$
13. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. We can see that:
- A. cable TV service is an inferior good.
  - B. cable TV service is a normal good.
  - C. cable TV service and satellite TV service are complements.
  - D. cable TV service and satellite TV service are unrelated to one another.
14. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. Suppose consumers' income is \$50,000 and the price of satellite TV service is \$90. At what price would the demand for cable TV services be equal to 55,000 households?
- A. \$67
  - B. \$48
  - C. \$12
  - D. There is not enough information to answer the question.

15. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. We can see that:
- A. cable TV and satellite TV are substitutes.
  - B. cable TV and satellite TV are complements.
  - C. satellite TV is a normal good.
  - D. satellite TV is an inferior good.
16. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. All else equal, a \$10 increase in the price of satellite TV will cause the quantity of cable TV demanded to:
- A. decrease by 3,000 households.
  - B. increase by 3,000 households.
  - C. decrease by 5,000 households.
  - D. increase by 5,000 households.
17. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. Suppose consumers' income is \$50,000 and the price of satellite TV service is \$90. How many households would demand cable TV if it were free?
- A. No households
  - B. 15,000 households
  - C. 67,000 households
  - D. Every household would demand cable TV if it were free.

18. A product's \_\_\_\_\_ shows how much sellers of a product want to sell at each possible price, holding all other factors fixed.
- A. supply function
  - B. supply curve
  - C. production function
  - D. total product curve
19. An increase in the price of a good is shown by a:
- A. movement up and to the left along the supply curve.
  - B. movement down and to the right along the supply curve.
  - C. movement up and to the right along the supply curve.
  - D. movement down and to the left along the supply curve.
20. An increase in the price of milk would be shown by a:
- A. rightward shift of the supply curve for milk.
  - B. movement up and to the right along the supply curve for milk.
  - C. leftward shift of the supply curve for milk.
  - D. movement down and to the left along the supply curve for milk.
21. Oil is an input used to produce gasoline. An increase in the price of oil would be represented by:
- A. a leftward shift of the supply curve for gasoline.
  - B. a rightward shift of the supply curve for gasoline.
  - C. a movement up and to the right along the supply curve for gasoline.
  - D. a movement down and to the left along the supply curve for gasoline.



22. An improvement in the technology used to produce cell phones would be shown by a:
- A. rightward shift of the supply curve for cell phones.
  - B. leftward shift of the supply curve for cell phones.
  - C. rightward shift of the demand curve for cell phones.
  - D. leftward shift of the demand curve for cell phones.
23. A change in the quantity supplied of a good is represented as a:
- A. movement along a supply curve.
  - B. shift of a supply curve.
  - C. movement along the supply function.
  - D. shift of the supply function.
24. Which of the following is a factor that affects both the supply of and demand for a good?
- A. Technology
  - B. Price of inputs
  - C. Consumers' income
  - D. Government regulations
25. A product's \_\_\_\_\_ describes the amount of the product that is supplied for each possible combination of its price and other factors.
- A. production function
  - B. supply curve
  - C. supply function
  - D. production possibilities curve

26. Refer to Figure 2.2. Which diagram represents the effect of a lower gasoline price on the supply of gasoline?

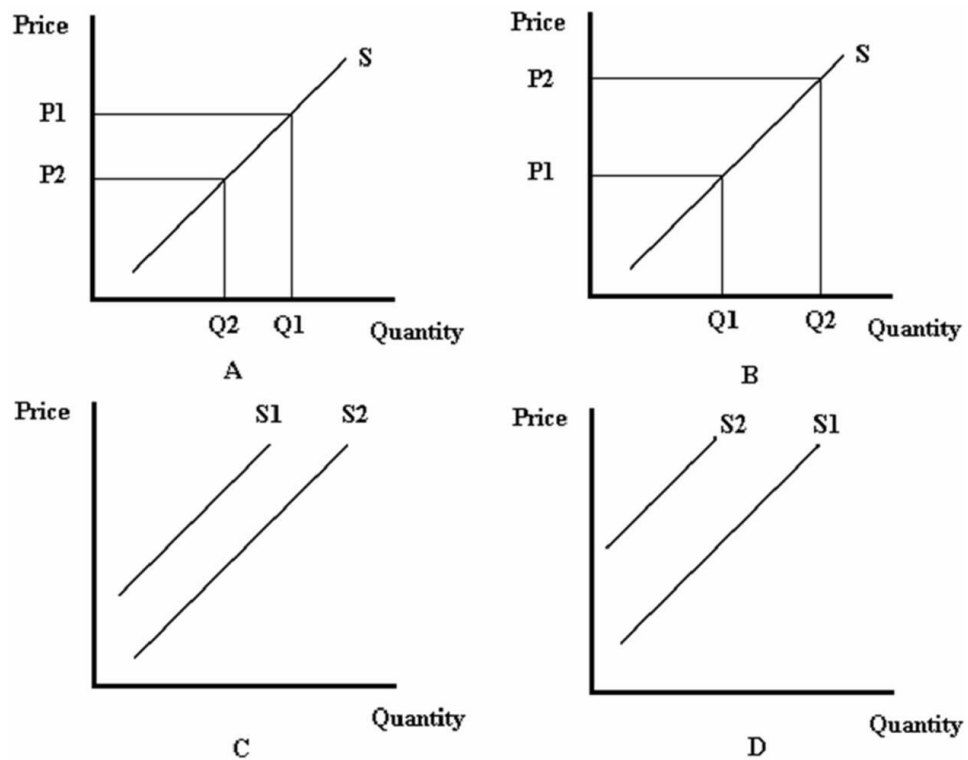


Figure 2.2

- A. A
- B. B
- C. C
- D. D

27. Refer to Figure 2.2. Which diagram best represents the effect of lower fertilizer prices on the market for corn?

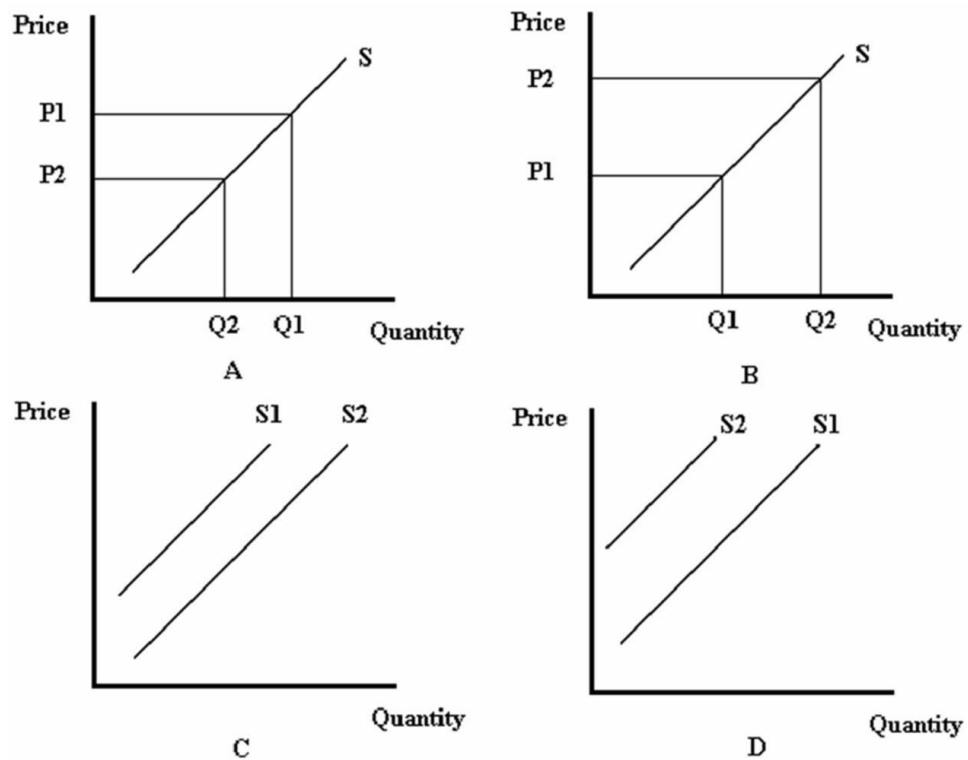


Figure 2.2

- A. A
- B. B
- C. C
- D. D

28. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, what is the supply curve for cars?
- A.  $Q_{\text{Cars}} = 124 + 4 \times P_{\text{Cars}}$
  - B.  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - .2 \times P_{\text{Workers}}$
  - C.  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}}$
  - D.  $Q_{\text{Cars}} = 76 + 4 \times P_{\text{Car}}$
29. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. What would be the impact of a \$15 increase in the price of steel?
- A. The quantity of cars supplied would decrease by 30,000 cars.
  - B. The quantity of cars supplied would increase by 30,000 cars.
  - C. The quantity of cars supplied would decrease by 7,500 cars.
  - D. The quantity of cars supplied would increase by 7,500 cars.
30. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, how many cars will be supplied if the price of cars is \$20,000?
- A. 96,000
  - B. 156,000
  - C. 204,000
  - D. 960,000

31. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, at what price would there be 164,000 cars supplied?

- A. \$10,000
- B. \$16,000
- C. \$22,000
- D. \$41,000

32. Refer to Figure 2.3. At a price of \$10 per CD, there would be:

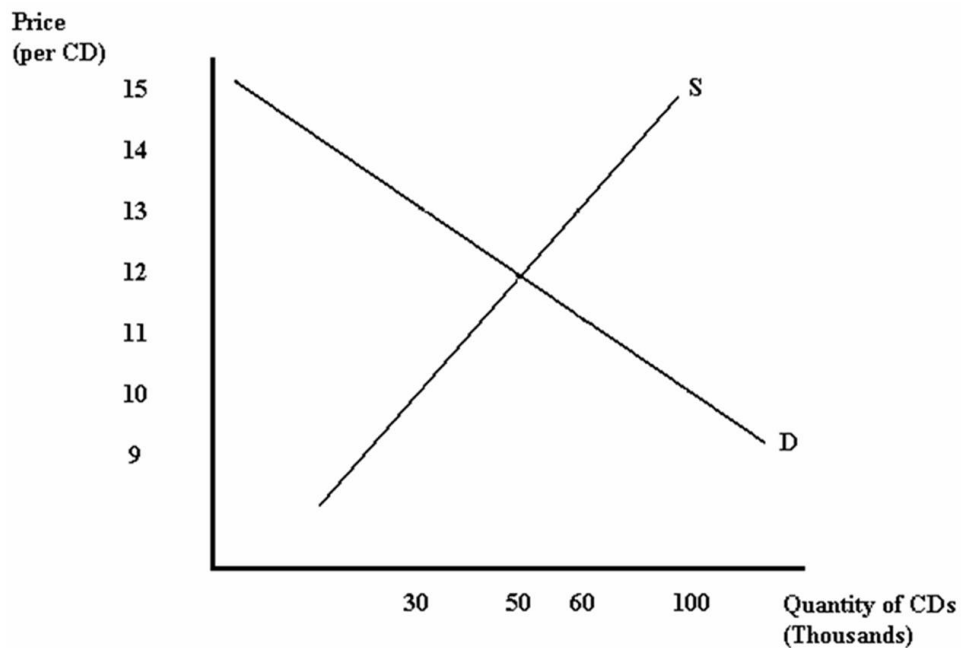


Figure 2.3

- A. excess supply of 70 thousand CDs.
- B. excess demand of 50 thousand CDs.
- C. excess supply of 50 thousand CDs.
- D. excess demand of 70 thousand CDs.

33. Refer to Figure 2.3. At a price of \$13 per CD, there would be:

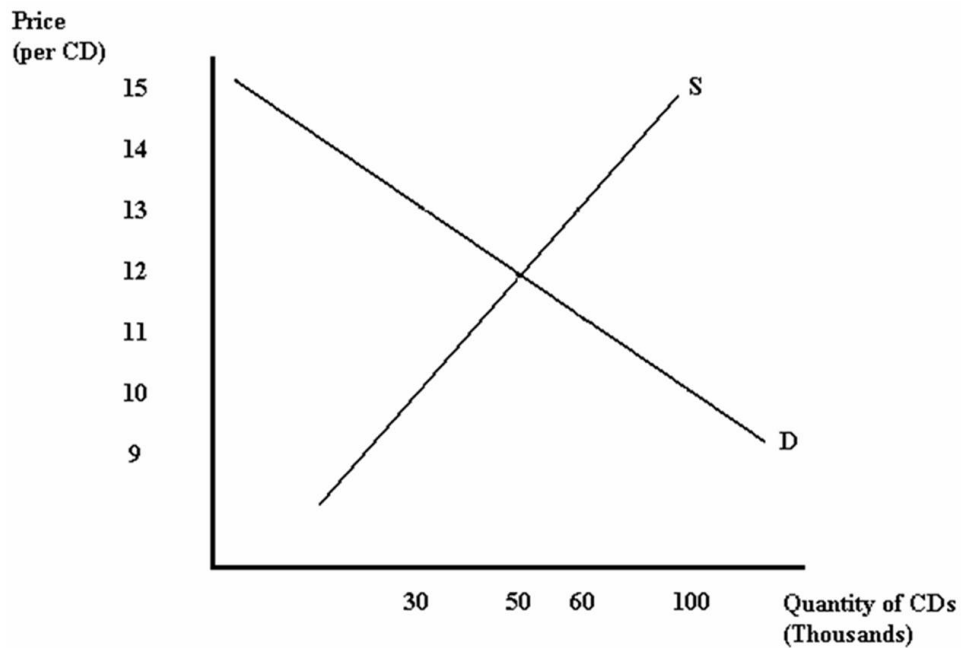


Figure 2.3

- A. excess supply of 30 thousand CDs.
  - B. excess demand of 10 thousand CDs.
  - C. excess supply of 60 thousand CDs.
  - D. excess demand of 60 thousand CDs.
34. Suppose that the demand for movies is given by  $Q^d = 30 - 2 \times P_{\text{Movies}}$  and the supply is given by  $Q^s = 2 + 2 \times P_{\text{Movies}}$ . What is the equilibrium price and quantity of movies?
- A.  $P_{\text{Movies}} = \$7$ ,  $Q = 30$
  - B.  $P_{\text{Movies}} = \$2$ ,  $Q = 30$
  - C.  $P_{\text{Movies}} = \$4$ ,  $Q = 28$
  - D.  $P_{\text{Movies}} = \$7$ ,  $Q = 16$

35. Which of the following best describes the process that occurs when the price of a good is below equilibrium?
- A. The excess demand for the good provides an incentive for buyers to offer a higher price. These higher prices encourage sellers to supply more of the good.
  - B. The excess supply of the good provides an incentive for buyers to offer a higher price. These higher prices encourage sellers to supply more of the good.
  - C. The excess demand for the good provides an incentive for buyers to offer a lower price. These lower prices encourage sellers to supply less of the good.
  - D. The excess supply for the good provides an incentive for buyers to offer a lower price. These lower prices encourage sellers to supply less of the good.
36. Excess supply is:
- A. the result of a price that is above equilibrium, causing the quantity demanded to exceed the quantity supplied.
  - B. the result of a price that is below equilibrium, causing the quantity demanded to exceed the quantity supplied.
  - C. the result of a price that is above equilibrium, causing the quantity supplied to exceed the quantity demanded.
  - D. the result of a price that is below equilibrium, causing the quantity supplied to exceed the quantity demanded.
37. Which economist is credited with originating the use of supply and demand analysis?
- A. Vernon Smith
  - B. Adam Smith
  - C. Alfred Marshall
  - D. John Maynard Keynes

38. Which economist won the Nobel Prize for using experiments to test the model of supply and demand?

- A. Vernon Smith
- B. Adam Smith
- C. Alfred Marshall
- D. Steven Levitt

39. Which of the following would result from an increase in the demand for a good?

- A. Both equilibrium price and quantity would rise.
- B. Both equilibrium price and quantity would fall.
- C. Equilibrium price would rise, and equilibrium quantity would fall.
- D. Equilibrium quantity would rise, and equilibrium price would fall.

40. Which of the following would result from an increase in the supply of a good?

- A. Both equilibrium price and quantity would rise.
- B. Both equilibrium price and quantity would fall.
- C. Equilibrium price would rise, and equilibrium quantity would fall.
- D. Equilibrium quantity would rise, and equilibrium price would fall.

41. Suppose there is a decrease in both the demand for and supply of a good. What happens to equilibrium price and quantity?

- A. Equilibrium quantity increases, but the effect on equilibrium price is ambiguous.
- B. Equilibrium quantity decreases, but the effect on equilibrium price is ambiguous.
- C. Equilibrium price increases, but the effect on equilibrium quantity is ambiguous.
- D. Equilibrium price decreases, but the effect on equilibrium quantity is ambiguous.



42. According to basic supply and demand analysis, when hurricane Katrina caused oil prices to rise, what happened to the equilibrium price and quantity of sport utility vehicles?
- A. Equilibrium price and quantity both increased.
  - B. Equilibrium price and quantity both decreased.
  - C. Equilibrium price increased, and equilibrium quantity decreased.
  - D. Equilibrium price decreased, and equilibrium quantity increased.
43. If the demand for a good increases at the same time the supply of the good decreases, what happens to equilibrium price and quantity?
- A. Equilibrium quantity increases, but the effect on equilibrium price is ambiguous.
  - B. Equilibrium quantity decreases, but the effect on equilibrium price is ambiguous.
  - C. Equilibrium price increases, but the effect on equilibrium quantity is ambiguous.
  - D. Equilibrium price decreases, but the effect on equilibrium quantity is ambiguous.
44. What can cause the price of a good to rise?
- A. An increase in demand or a decrease in supply
  - B. An increase in demand or an increase in supply
  - C. A decrease in demand or an increase in supply
  - D. A decrease in demand or a decrease in supply
45. What can cause the equilibrium quantity of a good to fall?
- A. An increase in demand or an increase in supply
  - B. A decrease in demand or a decrease in supply
  - C. An increase in demand or a decrease in supply
  - D. A decrease in demand or an increase in supply

46. Without more information, the supply and demand model cannot predict the effect on price of:
- A. a simultaneous decrease in quantity demanded and increase in quantity supplied.
  - B. a simultaneous decrease in demand and increase in supply.
  - C. a simultaneous increase in demand and increase in supply.
  - D. a simultaneous increase in demand and decrease in supply.
47. The \_\_\_\_\_ the demand curve, the \_\_\_\_\_ responsive is the amount demanded to price.
- A. steeper; less
  - B. steeper; more
  - C. flatter; less
  - D. higher; less
48. Suppose there is an increase in the supply of a good. Which of the following statements is true?
- A. The closer the demand curve is to being vertical, the larger the decrease in equilibrium price, and the smaller the increase in equilibrium quantity.
  - B. The closer the demand curve is to being horizontal, the larger the decrease in equilibrium price, and the smaller the increase in equilibrium quantity.
  - C. The closer the demand curve is to being vertical, the smaller the decrease in equilibrium price, and the larger the increase in equilibrium quantity.
  - D. The closer the demand curve is to being vertical, the larger the increase in equilibrium price, and the smaller the decrease in equilibrium quantity.
49. Supply curves tend to be \_\_\_\_\_ in the \_\_\_\_\_.
- A. steeper; long run
  - B. flatter; long run
  - C. flatter; short run
  - D. negatively-sloped; short run and in the long run

50. Which of the following is the formula for the elasticity of Y with respect to X?

- A.  $E = (\text{percent change in } Y) / (\text{percent change in } X)$
- B.  $E = (\text{percent change in } X) / (\text{percent change in } Y)$
- C.  $E = (\text{change in } Y) / (\text{change in } X)$
- D.  $E = (\text{change in } X) / (\text{change in } Y)$

51. Which of the following statements about elasticity measures is true?

- A. Elasticities are always positive values.
- B. Values that are close to zero indicate greater responsiveness.
- C. Values that are further from zero indicate greater responsiveness.
- D. Values that are further from zero indicate less elasticity.

52. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which good's demand is most sensitive to changes in price?

Good	Price Elasticity of Demand
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. Car Repair
- B. Bread
- C. Electricity
- D. Lamb

53. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which of the following is true about lamb?

<b>Good</b>	<b>Price Elasticity of Demand</b>
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. Each 2.7% change in the price of lamb causes a 1% change in the quantity demanded of lamb.
- B. The demand for lamb is inelastic.
- C. Each 1% change in the price of lamb causes a 2.7% change in the quantity demanded of lamb.
- D. Lamb is a normal good.
54. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which of the following would be true if the price of all four goods were to increase by 3%?

<b>Good</b>	<b>Price Elasticity of Demand</b>
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. The quantity of car repairs demanded would decrease by a smaller percentage than would the quantity of bread demanded.
- B. The quantity of car repairs demanded would increase by a smaller percentage than would the quantity of lamb demanded.
- C. The quantity of electricity demanded would decrease by a smaller percentage than would the quantity of lamb demanded.
- D. The quantity of electricity demanded would increase by a smaller percentage than would the quantity of bread demanded.

55. Suppose a good has a demand curve given by  $Q = 20 - 8 \times P$ . What is the price elasticity of demand if the price is \$2?
- A. -4
  - B. -1/16
  - C. 1/2
  - D. -1/2
56. For a linear demand curve, demand is \_\_\_\_ elastic at \_\_\_\_ prices.
- A. more; higher
  - B. less; higher
  - C. more; lower
  - D. constantly; all
57. Demand is said to be *elastic* when:
- A. the percentage change in the amount demanded is smaller than the percentage change in price.
  - B. the demand curve is relatively flat.
  - C. the elasticity of demand is less than -1.
  - D. the elasticity of demand is greater than -1.
58. Demand is said to be *perfectly inelastic* when:
- A. the demand curve is horizontal.
  - B. the elasticity of demand is infinite.
  - C. the elasticity of demand is zero.
  - D. consumers are highly responsive to change in the price of a good.

59. Refer to Figure 2.4. The elasticity of demand at point *a* is given by:

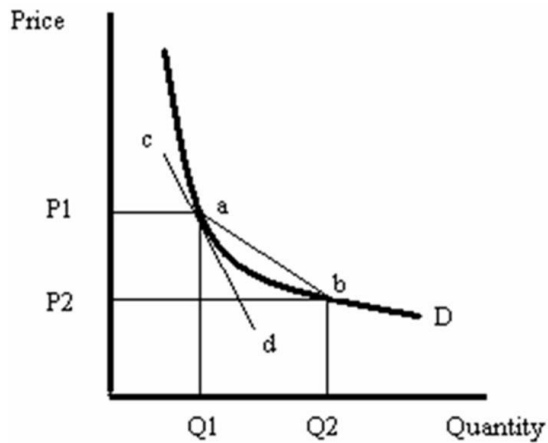


Figure 2.4

- A. the slope of line *cd* times  $(P1/Q1)$ .
  - B. the slope of line *ab* times  $(Q1/P1)$ .
  - C. the inverse of the slope of line *cd* times  $(P1/Q1)$ .
  - D. the inverse of the slope of line *ab* times  $(Q1/P1)$ .
60. Isoelastic demand means that:
- A. the elasticity of demand is equal to -1.
  - B. demand is completely unresponsive to price.
  - C. the elasticity of demand is infinite.
  - D. the demand function has the same elasticity at every price.
61. If a firm knows that the demand for its product is inelastic, it could generate more revenue by:
- A. lowering the price, because the resulting change in sales would be relatively large.
  - B. raising the price, because the resulting change in sales would be relatively large.
  - C. lowering the price, because the resulting change in sales would be relatively small.
  - D. raising the price, because the resulting change in sales would be relatively small.

62. Total expenditures on a company's product will be largest when it is priced such that the elasticity of demand:
- A. equals -1.
  - B. is greater than -1.
  - C. is less than -1.
  - D. equals 0.
63. In general, supply curves with an elasticity of supply between 0 and 1 are referred to as:
- A. inelastic.
  - B. elastic.
  - C. perfectly elastic.
  - D. perfectly inelastic.
64. When the demand curve shifts, the \_\_\_\_ elastic the supply curve at the initial equilibrium price, the \_\_\_\_ the change in equilibrium price and the \_\_\_\_ the change in equilibrium quantity.
- A. more; larger; smaller
  - B. less; larger; smaller
  - C. more; larger; larger
  - D. less; smaller; larger
65. An inferior good is characterized by:
- A. a positive income elasticity of demand.
  - B. a negative income elasticity of demand.
  - C. a negative price elasticity of demand.
  - D. a positive price elasticity of demand.

66. Complements are characterized by:

- A. negative cross-price elasticity of demand.
- B. positive cross-price elasticity of demand.
- C. cross-price elasticity of demand equal to zero.
- D. cross price elasticity of demand equal to -1.

67. Refer to Table 2.2, which presents hypothetical data on cross-price elasticity of demand estimates. Which goods are the *best* substitutes?

<b>Demand Change</b>	<b>Price Change</b>	<b>Cross-Price Elasticity</b>
Coke	Pepsi	0.70
Hard Liquor	Beer	-0.11
Beef	Chicken	0.02
Cheese	Butter	-0.61

Table 2.2

- A. Coke and Pepsi
  - B. Hard Liquor and Beer
  - C. Beef and Chicken
  - D. Cheese and Butter
68. Suppose that when the price of hot dogs is \$2 per package, there is a demand for 10,000 bags of hot dog buns. When the price of hot dogs is \$3 per package, the demand for hot dog buns falls to 8,000 bags. What is the cross-price elasticity of demand for hot dogs and hot dog buns?
- A. -0.4
  - B. -0.25
  - C. 4
  - D. 0.25



69. According to the text, which of the following statements is true?

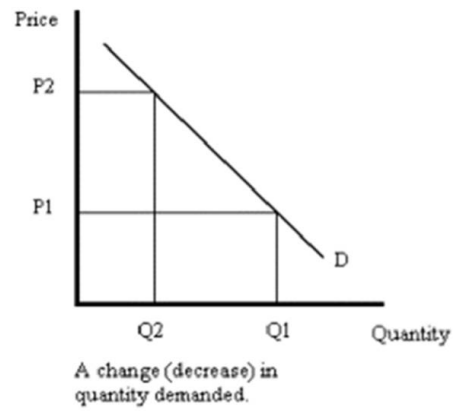
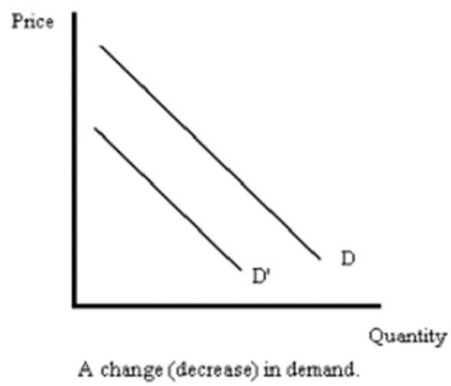
- A. The price elasticity of Honda Accords exceeds the price elasticity of demand for BMWs.
- B. The price elasticity of BMWs exceeds the price elasticity of demand for Honda Accords.
- C. The cross-price elasticity of demand for Hondas and BMWs is relatively large.
- D. The income elasticity of demand for BMWs is negative.

70. Along a straight-line demand curve:

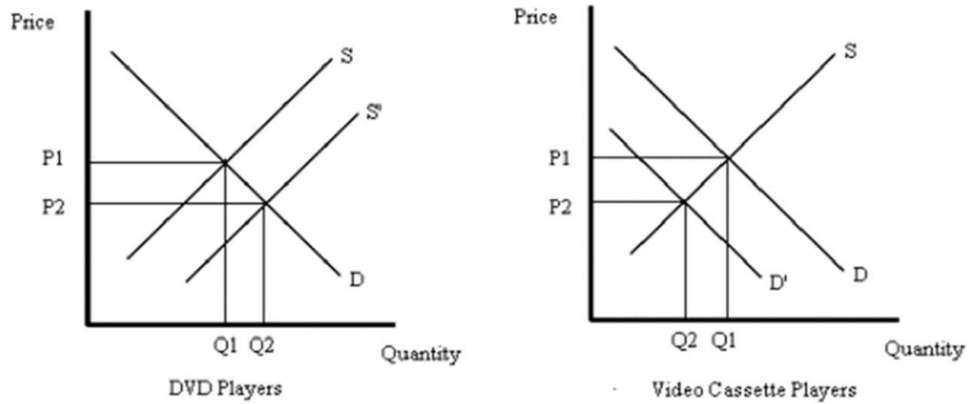
- A. both the slope and the price elasticity are constant.
- B. the slope is constant but the price elasticity is not.
- C. the slope is not constant, but the price elasticity is.
- D. neither the slope nor the price elasticity is constant.

## Essay Questions

71. What is the difference between a change in demand and a change in the quantity demanded of a good? Illustrate your answer using carefully labeled graphs.



72. Using a graph, explain how an increase in technology will affect the equilibrium price and quantity of DVD players. Again using a graph, explain what happens in the market for video cassette recorders.



73. Suppose bad weather destroys a significant portion of the nation's corn crop. Will total expenditures on corn increase or decrease? Illustrate your answer with a graph.

74. Recall that a linear demand curve has the form  $Q = A - BP$ , where  $P$  is price and  $A$  and  $B$  are positive numbers. Suppose that when price is \$5 the amount demanded is 100 and the elasticity of demand is -2. What are the values of  $A$  and  $B$ ?
75. Why are total expenditures on a good maximized at the point on the demand curve where the price elasticity of demand equals -1? Explain your answer using the appropriate algebra.
76. Suppose that an increase in oil prices causes the supply curve of gasoline to shift. Using a graph, illustrate the resulting changes in equilibrium price and quantity in both the short run and the long run.

77. Suppose the demand function for the Toyota Camry is given by  $Q_d = 500 - 12P_C + 10P_H - 5P_G + 0.0001M$ , where  $P_C$  is the price of the Toyota Camry (in thousands),  $P_H$  is the price of the Honda Accord (in thousands),  $P_G$  is the price of gas (per gallon) and  $M$  is income. Further, suppose the supply curve for the Toyota Camry is given by  $Q_s = 20P_C - 55$ .
- What is the demand curve for the Toyota Camry if the price of the Accord is \$25,000, gas is \$2 per gallon and income is \$50,000?
  - What is the equilibrium price and quantity in the market for Toyota Camrys?
  - Is demand elastic or inelastic at the equilibrium price?
  - What is the cross price elasticity of demand between Camrys and Accords at equilibrium?
  - What is the income elasticity of demand for Camrys at equilibrium?

## Chapter 02 Supply and Demand Answer Key

### Multiple Choice Questions

1. The relationship that shows how much buyers of a product want to buy at each possible price, holding fixed all other factors is called:

A. a demand curve.  
B. elasticity of demand.  
C. demand function.  
D. an indifference curve.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

2. Two products are substitutes if:

A. an increase in the price of one causes buyers to demand less of the other.  
B. an increase in the price of one causes buyers to demand more of the other.  
C. a decrease in the price of one causes buyers to demand more of the other.  
D. individuals consume the goods together.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

3. Two products are complements if:

- A. a decrease in the price of one causes buyers to demand less of the other.
- B. an increase in the price of one causes buyers to demand more of the other.
- C. a decrease in the price of one causes buyers to demand more of the other.
- D. individuals consume the goods together.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

4. If an increase in the price of one good causes buyers to demand less of another good, then the two goods are:

- A. normal goods.
- B. inferior goods.
- C. substitutes.
- D. complements.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

5. If an increase in the price of one good causes buyers to demand more of another good, then the two goods are:

- A. normal goods.
- B. inferior goods.
- C. substitutes.
- D. complements.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

6. Refer to Figure 2.1. A movement from point *a* to point *b* is most likely caused by:

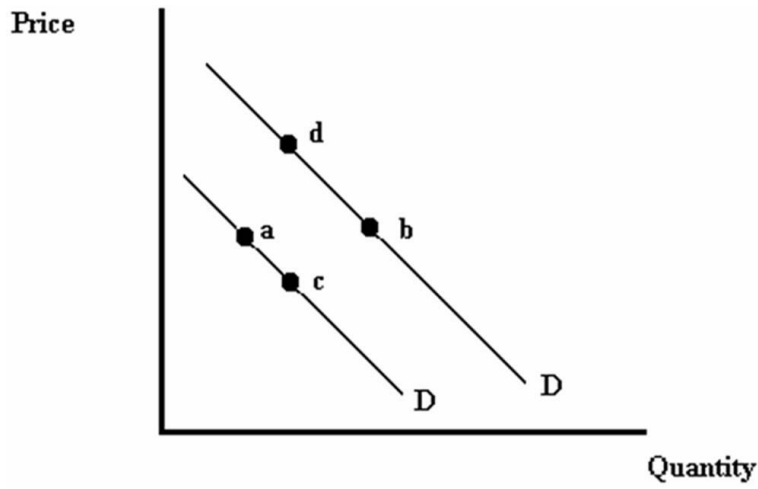


Figure 2.1

- A. a decrease in the price of the good.
- B.** an increase in consumers' incomes, assuming the good is normal.
- C. an increase in the price of a complementary good.
- D. a decrease in consumers' incomes, assuming the good is normal.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Demand*



7. Refer to Figure 2.1. A movement from point *a* to point *c* is most likely caused by:

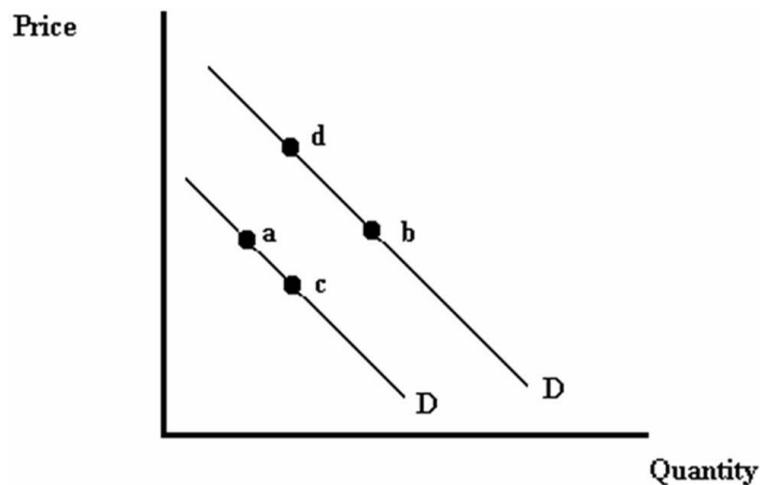


Figure 2.1

- A. a decrease in the price of the good.
- B. an increase in consumers' incomes, assuming the good is normal.
- C. a decrease in the price of a complementary good.
- D. an increase in the price of the good.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Demand*

8. An increase in the price of a good is shown by a:

- A. rightward shift of the demand curve.
- B. leftward shift of the demand curve.
- C. movement up and to the left along the demand curve.
- D. movement down and to the right along the demand curve.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Demand*

9. A change in demand of a good is shown by a:

- A. movement along a demand curve.
- B.** shift of a demand curve.
- C. movement along the demand function.
- D. shift of the demand function.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

10. A product's \_\_\_\_\_ describes the amount of the product that is demanded for each possible combination of its price and other factors.

- A. demand curve
- B. price-consumption curve
- C. utility function
- D.** demand function

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Demana*

11. The effect of an increase in the price of gasoline on the demand for sport utility vehicles would be shown by a:

- A. rightward shift of the demand curve for sport utility vehicles.
- B.** leftward shift of the demand curve for sport utility vehicles.
- C. movement up and to the left along the demand curve for sport utility vehicles.
- D. movement down and to the right along the demand curve for sport utility vehicles.

*AACSB: Analytic*

*Blooms: Understand*

*Difficulty: 2 Medium*

12. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. If consumers' income is \$50,000 and the price of satellite TV service is \$90, then which of the following gives the demand curve for cable TV?

- A.  $Q_{CTV} = 17 - 0.25 \times P_{CTV}$
- B.  $Q_{CTV} = 67 - 0.25 \times P_{CTV}$**
- C.  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$
- D.  $Q_{CTV} = 13 - 0.25 \times P_{CTV}$

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hara

Topic: Demana

13. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. We can see that:

- A. cable TV service is an inferior good.
- B. cable TV service is a normal good.**
- C. cable TV service and satellite TV service are complements.
- D. cable TV service and satellite TV service are unrelated to one another.

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hara

Topic: Demana

14. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. Suppose consumers' income is \$50,000 and the price of satellite TV service is \$90. At what price would the demand for cable TV services be equal to 55,000 households?
- A. \$67  
**B.** \$48  
C. \$12  
D. There is not enough information to answer the question.

*AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Demand*

15. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ , where  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. We can see that:
- A.** cable TV and satellite TV are substitutes.  
B. cable TV and satellite TV are complements.  
C. satellite TV is a normal good.  
D. satellite TV is an inferior good.

*AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Demand*

16. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. All else equal, a \$10 increase in the price of satellite TV will cause the quantity of cable TV demanded to:

- A. decrease by 3,000 households.
- B. increase by 3,000 households.
- C. decrease by 5,000 households.
- D. increase by 5,000 households.

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Demand*

17. Suppose the demand function for cable TV service is given by  $Q_{CTV} = 15 - 0.25 \times P_{CTV} + 0.0005 \times M + 0.3 \times P_{STV}$ ,  $Q_{CTV}$  is the quantity of cable TV demanded (thousands of households),  $P_{CTV}$  is the price of cable TV,  $M$  is income and  $P_{STV}$  is the price of satellite TV service. Suppose consumers' income is \$50,000 and the price of satellite TV service is \$90. How many households would demand cable TV if it were free?

- A. No households
- B. 15,000 households
- C. 67,000 households
- D. Every household would demand cable TV if it were free.

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Demand*

18. A product's \_\_\_\_\_ shows how much sellers of a product want to sell at each possible price, holding all other factors fixed.

- A. supply function
- B. supply curve
- C. production function
- D. total product curve

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Supply*

19. An increase in the price of a good is shown by a:

- A. movement up and to the left along the supply curve.
- B. movement down and to the right along the supply curve.
- C. movement up and to the right along the supply curve.
- D. movement down and to the left along the supply curve.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Supply*

20. An increase in the price of milk would be shown by a:

- A. rightward shift of the supply curve for milk.
- B. movement up and to the right along the supply curve for milk.
- C. leftward shift of the supply curve for milk.
- D. movement down and to the left along the supply curve for milk.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Supply*

21. Oil is an input used to produce gasoline. An increase in the price of oil would be represented by:

- A. a leftward shift of the supply curve for gasoline.
- B. a rightward shift of the supply curve for gasoline.
- C. a movement up and to the right along the supply curve for gasoline.
- D. a movement down and to the left along the supply curve for gasoline.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Supply*

22. An improvement in the technology used to produce cell phones would be shown by a:

- A. rightward shift of the supply curve for cell phones.
- B. leftward shift of the supply curve for cell phones.
- C. rightward shift of the demand curve for cell phones.
- D. leftward shift of the demand curve for cell phones.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Supply*

23. A change in the quantity supplied of a good is represented as a:

- A. movement along a supply curve.
- B. shift of a supply curve.
- C. movement along the supply function.
- D. shift of the supply function.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Supply*

24. Which of the following is a factor that affects both the supply of and demand for a good?

- A. Technology
- B. Price of inputs
- C. Consumers' income
- D. Government regulations

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Supply*

25. A product's \_\_\_\_\_ describes the amount of the product that is supplied for each possible combination of its price and other factors.

- A. production function
- B. supply curve
- C. supply function
- D. production possibilities curve

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Supply*



26. Refer to Figure 2.2. Which diagram represents the effect of a lower gasoline price on the supply of gasoline?

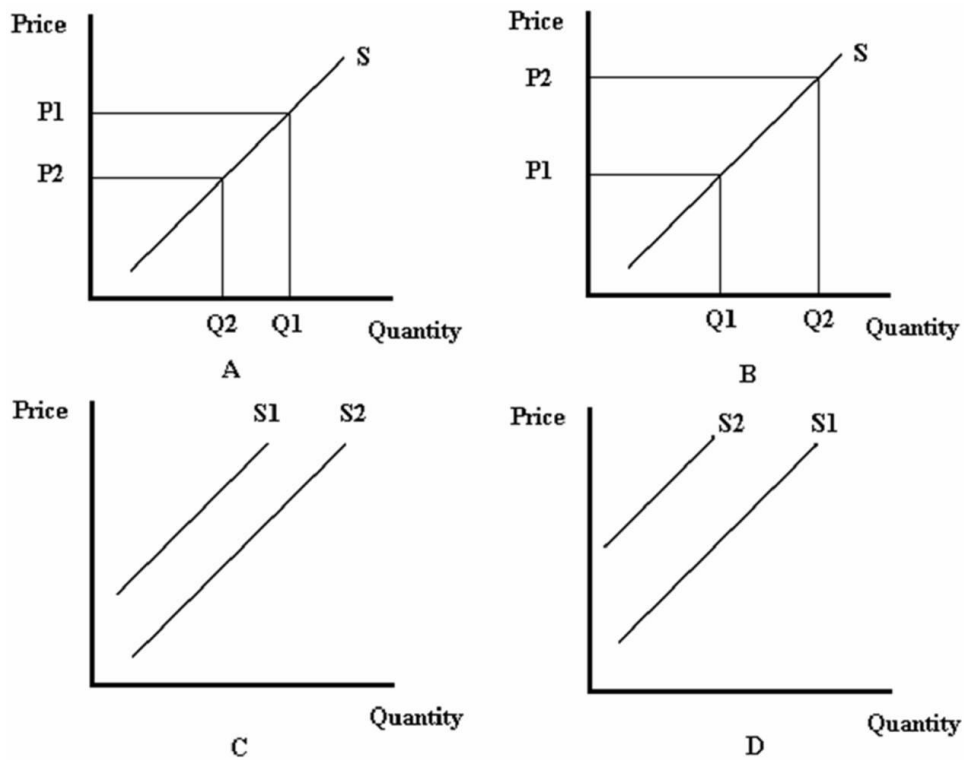


Figure 2.2

- A. A  
B. B  
C. C  
D. D

AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Supply

27. Refer to Figure 2.2. Which diagram best represents the effect of lower fertilizer prices on the market for corn?

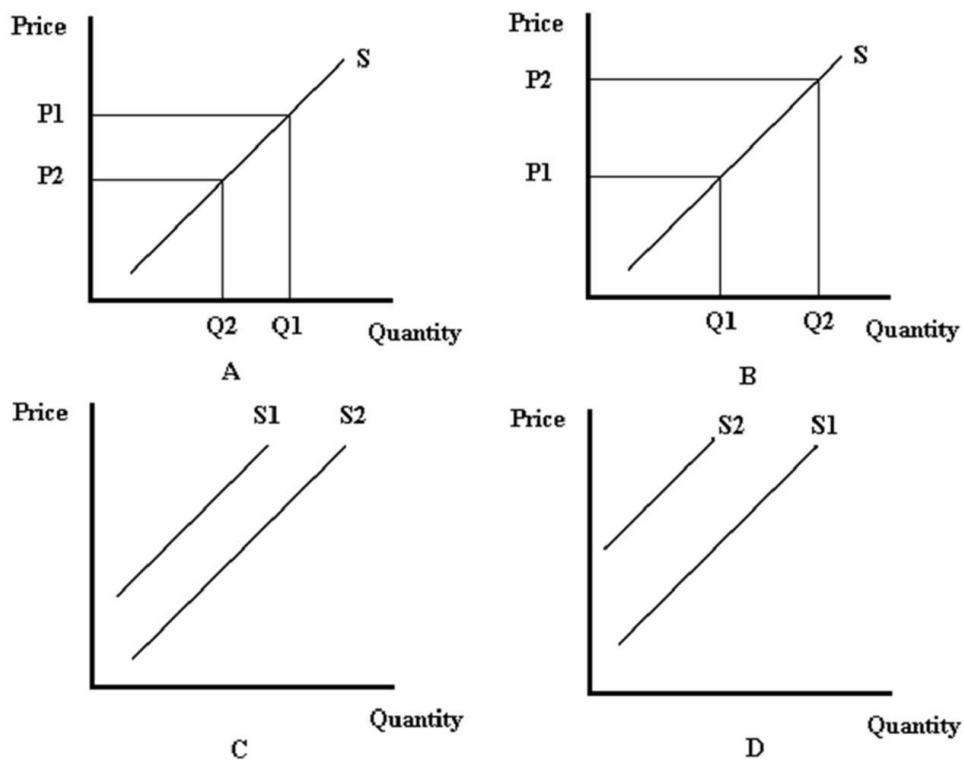


Figure 2.2

- A. A  
B. B  
C. C  
D. D

AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Supply

28. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, what is the supply curve for cars?

- A.  $Q_{\text{Cars}} = 124 + 4 \times P_{\text{Cars}}$   
B.  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - .2 \times P_{\text{Workers}}$   
C.  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}}$   
D.  $Q_{\text{Cars}} = 76 + 4 \times P_{\text{Car}}$

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Supply*

29. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. What would be the impact of a \$15 increase in the price of steel?

- A. The quantity of cars supplied would decrease by 30,000 cars.  
B. The quantity of cars supplied would increase by 30,000 cars.  
C. The quantity of cars supplied would decrease by 7,500 cars.  
D. The quantity of cars supplied would increase by 7,500 cars.

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Supply*

30. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, how many cars will be supplied if the price of cars is \$20,000?

- A. 96,000
- B.** 156,000
- C. 204,000
- D. 960,000

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Supply*

31. Consider the relationship given by  $Q_{\text{Cars}} = 100 + 4 \times P_{\text{Cars}} - 2 \times P_{\text{Steel}} - 0.2 \times P_{\text{Workers}}$ , where  $Q_{\text{Cars}}$  is the quantity of cars supplied (in thousands),  $P_{\text{Cars}}$  is the price of cars (in thousands of dollars),  $P_{\text{Steel}}$  is the price of steel, and  $P_{\text{Workers}}$  is the wage earned by autoworkers. If the price of steel is \$10 per unit and the price of workers (the wage) is \$20, at what price would there be 164,000 cars supplied?

- A. \$10,000
- B. \$16,000
- C.** \$22,000
- D. \$41,000

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Supply*

32. Refer to Figure 2.3. At a price of \$10 per CD, there would be:

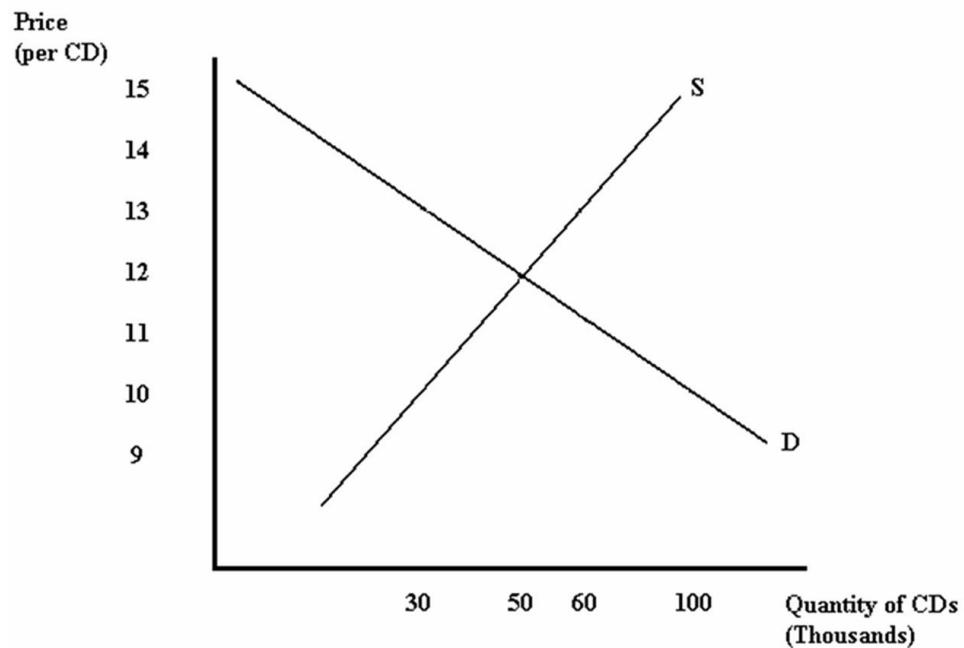


Figure 2.3

- A. excess supply of 70 thousand CDs.
- B. excess demand of 50 thousand CDs.
- C. excess supply of 50 thousand CDs.
- D. excess demand of 70 thousand CDs.

AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Market Equilibrium

33. Refer to Figure 2.3. At a price of \$13 per CD, there would be:

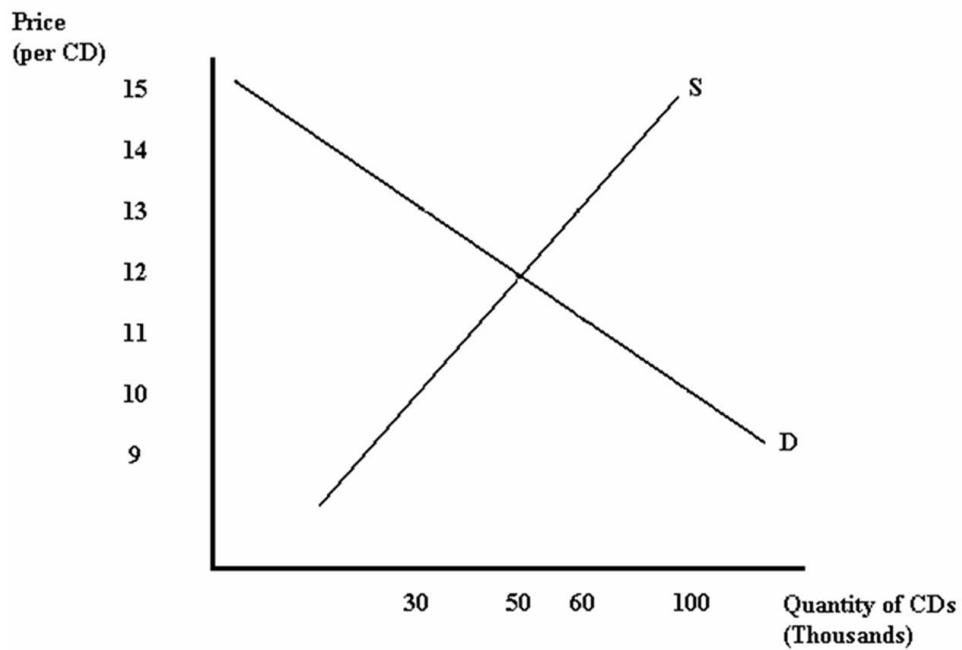


Figure 2.3

- A. excess supply of 30 thousand CDs.  
B. excess demand of 10 thousand CDs.  
C. excess supply of 60 thousand CDs.  
D. excess demand of 60 thousand CDs.

AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Market Equilibrium

34. Suppose that the demand for movies is given by  $Q^d = 30 - 2 \times P_{\text{Movies}}$  and the supply is given by  $Q^s = 2 + 2 \times P_{\text{Movies}}$ . What is the equilibrium price and quantity of movies?

- A.  $P_{\text{Movies}} = \$7, Q = 30$
- B.  $P_{\text{Movies}} = \$2, Q = 30$
- C.  $P_{\text{Movies}} = \$4, Q = 28$
- D.  $P_{\text{Movies}} = \$7, Q = 16$

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Market Equilibrium*

35. Which of the following best describes the process that occurs when the price of a good is below equilibrium?

- A. The excess demand for the good provides an incentive for buyers to offer a higher price. These higher prices encourage sellers to supply more of the good.
- B. The excess supply of the good provides an incentive for buyers to offer a higher price. These higher prices encourage sellers to supply more of the good.
- C. The excess demand for the good provides an incentive for buyers to offer a lower price. These lower prices encourage sellers to supply less of the good.
- D. The excess supply for the good provides an incentive for buyers to offer a lower price. These lower prices encourage sellers to supply less of the good.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Market Equilibrium*

36. Excess supply is:

- A. the result of a price that is above equilibrium, causing the quantity demanded to exceed the quantity supplied.
- B. the result of a price that is below equilibrium, causing the quantity demanded to exceed the quantity supplied.
- C. the result of a price that is above equilibrium, causing the quantity supplied to exceed the quantity demanded.
- D. the result of a price that is below equilibrium, causing the quantity supplied to exceed the quantity demanded.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Market Equilibrium*

37. Which economist is credited with originating the use of supply and demand analysis?

- A. Vernon Smith
- B. Adam Smith
- C. Alfred Marshall
- D. John Maynard Keynes

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Market Equilibrium*



38. Which economist won the Nobel Prize for using experiments to test the model of supply and demand?

- A. Vernon Smith
- B. Adam Smith
- C. Alfred Marshall
- D. Steven Levitt

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Market Equilibrium*

39. Which of the following would result from an increase in the demand for a good?

- A. Both equilibrium price and quantity would rise.
- B. Both equilibrium price and quantity would fall.
- C. Equilibrium price would rise, and equilibrium quantity would fall.
- D. Equilibrium quantity would rise, and equilibrium price would fall.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Market Equilibrium*

40. Which of the following would result from an increase in the supply of a good?

- A. Both equilibrium price and quantity would rise.
- B. Both equilibrium price and quantity would fall.
- C. Equilibrium price would rise, and equilibrium quantity would fall.
- D. Equilibrium quantity would rise, and equilibrium price would fall.

*AACSB: Reflective Thinking*  
*Blooms: Remember*  
*Difficulty: 1 Easy*  
*Topic: Market Equilibrium*

41. Suppose there is a decrease in both the demand for and supply of a good. What happens to equilibrium price and quantity?

- A. Equilibrium quantity increases, but the effect on equilibrium price is ambiguous.
- B. Equilibrium quantity decreases, but the effect on equilibrium price is ambiguous.
- C. Equilibrium price increases, but the effect on equilibrium quantity is ambiguous.
- D. Equilibrium price decreases, but the effect on equilibrium quantity is ambiguous.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Market Equilibrium*

42. According to basic supply and demand analysis, when hurricane Katrina caused oil prices to rise, what happened to the equilibrium price and quantity of sport utility vehicles?

- A. Equilibrium price and quantity both increased.
- B. Equilibrium price and quantity both decreased.
- C. Equilibrium price increased, and equilibrium quantity decreased.
- D. Equilibrium price decreased, and equilibrium quantity increased.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*  
*Topic: Market Equilibrium*

43. If the demand for a good increases at the same time the supply of the good decreases, what happens to equilibrium price and quantity?

- A. Equilibrium quantity increases, but the effect on equilibrium price is ambiguous.
- B. Equilibrium quantity decreases, but the effect on equilibrium price is ambiguous.
- C. Equilibrium price increases, but the effect on equilibrium quantity is ambiguous.
- D. Equilibrium price decreases, but the effect on equilibrium quantity is ambiguous.

*AACSB: Analytic*  
*Blooms: Understand*  
*Difficulty: 2 Medium*

44. What can cause the price of a good to rise?

- A. An increase in demand or a decrease in supply
- B. An increase in demand or an increase in supply
- C. A decrease in demand or an increase in supply
- D. A decrease in demand or a decrease in supply

AACSB: Analytic  
Blooms: Understand  
Difficulty: 2 Medium  
Topic: Market Equilibrium

45. What can cause the equilibrium quantity of a good to fall?

- A. An increase in demand or an increase in supply
- B. A decrease in demand or a decrease in supply
- C. An increase in demand or a decrease in supply
- D. A decrease in demand or an increase in supply

AACSB: Analytic  
Blooms: Understand  
Difficulty: 2 Medium  
Topic: Market Equilibrium

46. Without more information, the supply and demand model cannot predict the effect on price of:

- A. a simultaneous decrease in quantity demanded and increase in quantity supplied.
- B. a simultaneous decrease in demand and increase in supply.
- C. a simultaneous increase in demand and increase in supply.
- D. a simultaneous increase in demand and decrease in supply.

AACSB: Analytic  
Blooms: Understand  
Difficulty: 2 Medium  
Topic: Market Equilibrium

47. The \_\_\_\_\_ the demand curve, the \_\_\_\_\_ responsive is the amount demanded to price.

- A. steeper; less
- B. steeper; more
- C. flatter; less
- D. higher; less

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

48. Suppose there is an increase in the supply of a good. Which of the following statements is true?

- A. The closer the demand curve is to being vertical, the larger the decrease in equilibrium price, and the smaller the increase in equilibrium quantity.
- B. The closer the demand curve is to being horizontal, the larger the decrease in equilibrium price, and the smaller the increase in equilibrium quantity.
- C. The closer the demand curve is to being vertical, the smaller the decrease in equilibrium price, and the larger the increase in equilibrium quantity.
- D. The closer the demand curve is to being vertical, the larger the increase in equilibrium price, and the smaller the decrease in equilibrium quantity.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

49. Supply curves tend to be \_\_\_\_ in the \_\_\_\_.

- A. steeper; long run
- B. flatter; long run
- C. flatter; short run
- D. negatively-sloped; short run and in the long run

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

50. Which of the following is the formula for the elasticity of Y with respect to X?

- A.  $E = (\text{percent change in } Y) / (\text{percent change in } X)$
- B.  $E = (\text{percent change in } X) / (\text{percent change in } Y)$
- C.  $E = (\text{change in } Y) / (\text{change in } X)$
- D.  $E = (\text{change in } X) / (\text{change in } Y)$

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

51. Which of the following statements about elasticity measures is true?

- A. Elasticities are always positive values.
- B. Values that are close to zero indicate greater responsiveness.
- C. Values that are further from zero indicate greater responsiveness.
- D. Values that are further from zero indicate less elasticity.

*AACSB: Reflective Thinking*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

52. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which good's demand is most sensitive to changes in price?

Good	Price Elasticity of Demand
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. Car Repair
- B. Bread
- C. Electricity
- D. Lamb

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hard

Topic: Elasticities of Demand and Supply

53. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which of the following is true about lamb?

Good	Price Elasticity of Demand
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. Each 2.7% change in the price of lamb causes a 1% change in the quantity demanded of lamb.
- B. The demand for lamb is inelastic.
- C. Each 1% change in the price of lamb causes a 2.7% change in the quantity demanded of lamb.
- D. Lamb is a normal good.

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hara

Topic: Elasticities of Demand and Supply

54. According to Table 2.1, which presents hypothetical data on price elasticity of demand, which of the following would be true if the price of all four goods were to increase by 3%?

Good	Price Elasticity of Demand
Car Repair	-1.2
Bread	-.2
Electricity	-.1
Lamb	-2.7

Table 2.1

- A. The quantity of car repairs demanded would decrease by a smaller percentage than would the quantity of bread demanded.
- B. The quantity of car repairs demanded would increase by a smaller percentage than would the quantity of lamb demanded.
- C. The quantity of electricity demanded would decrease by a smaller percentage than would the quantity of lamb demanded.
- D. The quantity of electricity demanded would increase by a smaller percentage than would the quantity of bread demanded.

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hara

Topic: Elasticities of Demand and Supply

55. Suppose a good has a demand curve given by  $Q = 20 - 8 \times P$ . What is the price elasticity of demand if the price is \$2?

- A. -4
- B. -1/16
- C. 1/2
- D. -1/2

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hard  
Topic: Elasticities of Demand and Supply

56. For a linear demand curve, demand is \_\_\_\_ elastic at \_\_\_\_ prices.

- A. more; higher
- B. less; higher
- C. more; lower
- D. constantly; all

AACSB: Reflective Thinking  
Blooms: Remember  
Difficulty: 1 Easy  
Topic: Elasticities of Demand and Supply

57. Demand is said to be *elastic* when:

- A. the percentage change in the amount demanded is smaller than the percentage change in price.
- B. the demand curve is relatively flat.
- C. the elasticity of demand is less than -1.
- D. the elasticity of demand is greater than -1.

AACSB: Reflective Thinking  
Blooms: Remember  
Difficulty: 1 Easy  
Topic: Elasticities of Demand and Supply

58. Demand is said to be *perfectly inelastic* when:

- A. the demand curve is horizontal.
- B. the elasticity of demand is infinite.
- C. the elasticity of demand is zero.
- D. consumers are highly responsive to change in the price of a good.

AACSB: Reflective Thinking  
Blooms: Remember



59. Refer to Figure 2.4. The elasticity of demand at point *a* is given by:

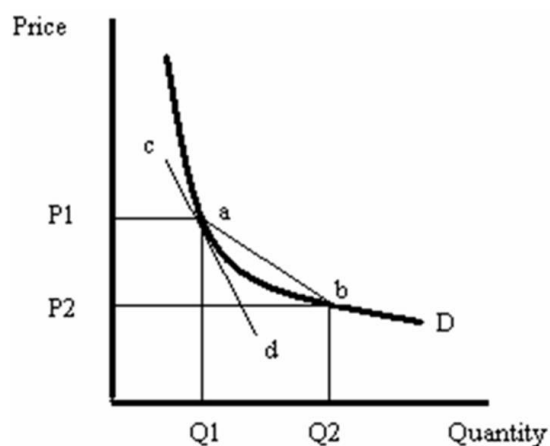


Figure 2.4

- A. the slope of line *cd* times  $(P1/Q1)$ .
- B. the slope of line *ab* times  $(Q1/P1)$ .
- C. the inverse of the slope of line *cd* times  $(P1/Q1)$ .
- D. the inverse of the slope of line *ab* times  $(Q1/P1)$ .

60. Isoelastic demand means that:

- A. the elasticity of demand is equal to -1.
- B. demand is completely unresponsive to price.
- C. the elasticity of demand is infinite.
- D. the demand function has the same elasticity at every price.

61. If a firm knows that the demand for its product is inelastic, it could generate more revenue by:
- A. lowering the price, because the resulting change in sales would be relatively large.
  - B. raising the price, because the resulting change in sales would be relatively large.
  - C. lowering the price, because the resulting change in sales would be relatively small.
  - D. raising the price, because the resulting change in sales would be relatively small.

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hard

Topic: Elasticities of Demand and Supply

62. Total expenditures on a company's product will be largest when it is priced such that the elasticity of demand:

- A. equals -1.
- B. is greater than -1.
- C. is less than -1.
- D. equals 0.

AACSB: Analytic

Blooms: Understand

Difficulty: 2 Medium

Topic: Elasticities of Demand and Supply

63. In general, supply curves with an elasticity of supply between 0 and 1 are referred to as:

- A. inelastic.
- B. elastic.
- C. perfectly elastic.
- D. perfectly inelastic.

AACSB: Reflective Thinking

Blooms: Remember

Difficulty: 1 Easy

64. When the demand curve shifts, the \_\_\_\_ elastic the supply curve at the initial equilibrium price, the \_\_\_\_ the change in equilibrium price and the \_\_\_\_ the change in equilibrium quantity.

A. more; larger; smaller  
**B.** less; larger; smaller  
C. more; larger; larger  
D. less; smaller; larger

AACSB: Analytic

Blooms: Understand

Difficulty: 2 Medium

Topic: Elasticities of Demand and Supply

65. An inferior good is characterized by:

A. a positive income elasticity of demand.  
**B.** a negative income elasticity of demand.  
C. a negative price elasticity of demand.  
D. a positive price elasticity of demand.

AACSB: Reflective Thinking

Blooms: Remember

Difficulty: 1 Easy

Topic: Elasticities of Demand and Supply

66. Complements are characterized by:

**A.** negative cross-price elasticity of demand.  
B. positive cross-price elasticity of demand.  
C. cross-price elasticity of demand equal to zero.  
D. cross price elasticity of demand equal to -1.

AACSB: Reflective Thinking

Blooms: Remember

Difficulty: 1 Easy

67. Refer to Table 2.2, which presents hypothetical data on cross-price elasticity of demand estimates. Which goods are the *best* substitutes?

Demand Change	Price Change	Cross-Price Elasticity
Coke	Pepsi	0.70
Hard Liquor	Beer	-0.11
Beef	Chicken	0.02
Cheese	Butter	-0.61

Table 2.2

- A. Coke and Pepsi
- B. Hard Liquor and Beer
- C. Beef and Chicken
- D. Cheese and Butter

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hard

Topic: Elasticities of Demand and Supply

68. Suppose that when the price of hot dogs is \$2 per package, there is a demand for 10,000 bags of hot dog buns. When the price of hot dogs is \$3 per package, the demand for hot dog buns falls to 8,000 bags. What is the cross-price elasticity of demand for hot dogs and hot dog buns?

- A. -0.4
- B. -0.25
- C. 4
- D. 0.25

AACSB: Analytic

Blooms: Apply

Difficulty: 3 Hard

Topic: Elasticities of Demand and Supply

69. According to the text, which of the following statements is true?

- A. The price elasticity of Honda Accords exceeds the price elasticity of demand for BMWs.
- B. The price elasticity of BMWs exceeds the price elasticity of demand for Honda Accords.
- C. The cross-price elasticity of demand for Hondas and BMWs is relatively large.
- D. The income elasticity of demand for BMWs is negative.

*AACSB: Analytic*

*Blooms: Remember*

*Difficulty: 1 Easy*

*Topic: Elasticities of Demand and Supply*

70. Along a straight-line demand curve:

- A. both the slope and the price elasticity are constant.
- B. the slope is constant but the price elasticity is not.
- C. the slope is not constant, but the price elasticity is.
- D. neither the slope nor the price elasticity is constant.

*AACSB: Analytic*

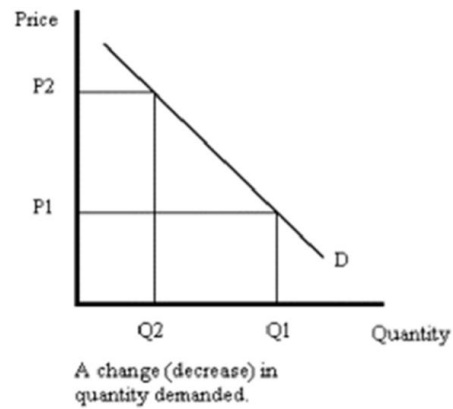
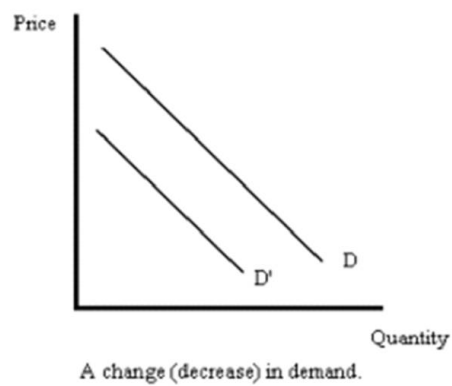
*Blooms: Understand*

*Difficulty: 2 Medium*

*Topic: Elasticities of Demand and Supply*

## Essay Questions

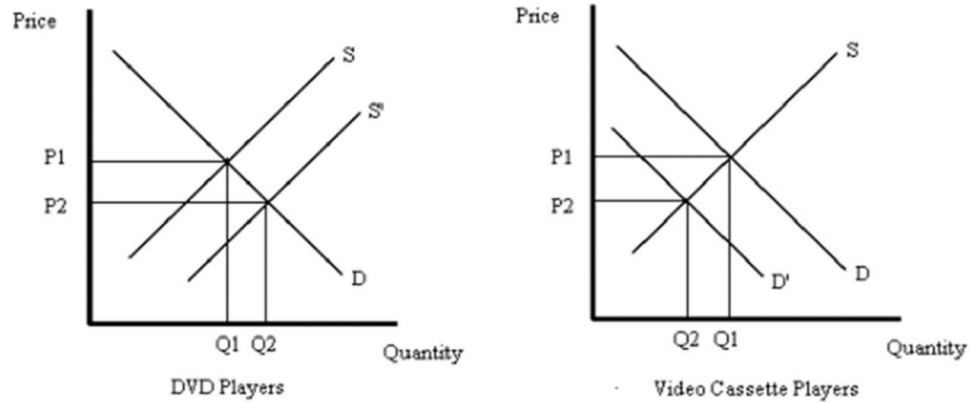
71. What is the difference between a change in demand and a change in the quantity demanded of a good? Illustrate your answer using carefully labeled graphs.



A change in demand is caused by a change in any factor other than price that affects demand. A change in demand is shown by a shift in a demand curve. A change in quantity demanded results from a change in price and is represented by a movement along the demand curve.

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Demand*

72. Using a graph, explain how an increase in technology will affect the equilibrium price and quantity of DVD players. Again using a graph, explain what happens in the market for video cassette recorders.

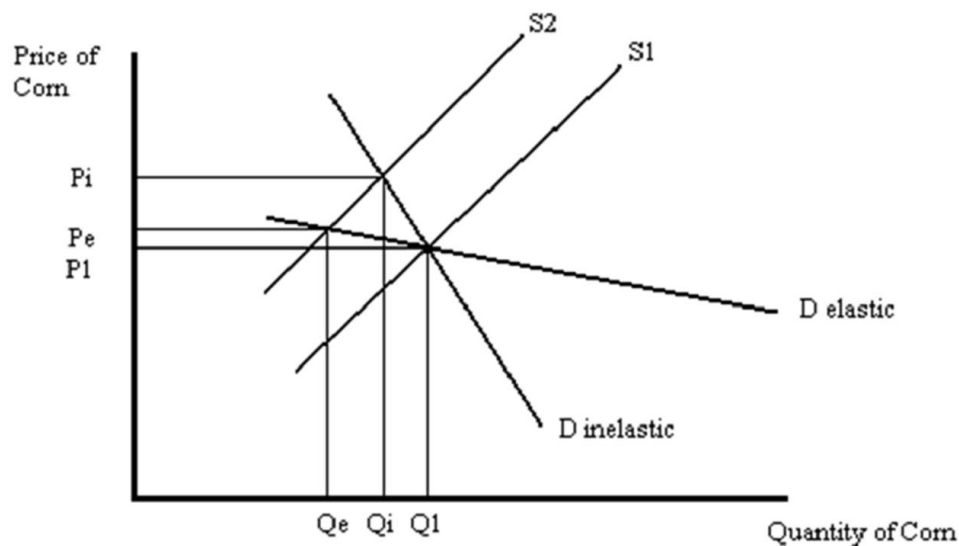


The increase in technology causes the supply curve for DVD players to shift to the right. The result is a lower equilibrium price and a higher equilibrium quantity. Because DVD players and Video Cassette players are substitutes, the demand for video cassette players will decrease. As a result, both the equilibrium price and quantity will decrease.

*AACSB: Analytic*  
*Blooms: Apply*  
*Difficulty: 3 Hard*  
*Topic: Market Equilibrium*

73. Suppose bad weather destroys a significant portion of the nation's corn crop. Will total expenditures on corn increase or decrease? Illustrate your answer with a graph.

When bad weather destroys a significant amount of the nation's corn crop, the supply curve for corn will shift to the left. The resulting magnitudes of the changes in the equilibrium price and quantity of corn will depend upon whether demand for corn is elastic or inelastic.



If the demand for corn is elastic, then the resulting change in price ( $P_1$  to  $P_e$ ) is proportionately smaller than the change in quantity ( $Q_1$  to  $Q_e$ ). As a result, total expenditures on corn will decrease. If the demand for corn is inelastic, then the resulting change in price ( $P_1$  to  $P_i$ ) is proportionately greater than the change in quantity ( $Q_1$  to  $Q_i$ ). As a result, total expenditures on corn will increase.

*AACSB: Analytic*

*Blooms: Apply*

*Difficulty: 3 Hard*

*Topic: Market Equilibrium*



74. Recall that a linear demand curve has the form  $Q = A - BP$ , where  $P$  is price and  $A$  and  $B$  are positive numbers. Suppose that when price is \$5 the amount demanded is 100 and the elasticity of demand is -2. What are the values of  $A$  and  $B$ ?

$E = -B \times (P/Q)$ , so  $-2 = -B \times (5/100)$  which implies that  $B = 40$ . Now, using  $Q = A - BP$ , we have  $100 = A - 40(5)$ , which implies that  $A = 300$ .

*AACSB: Analytic*

*Blooms: Apply*

*Difficulty: 3 Hard*

*Topic: Elasticities of Demand and Supply*

75. Why are total expenditures on a good maximized at the point on the demand curve where the price elasticity of demand equals -1? Explain your answer using the appropriate algebra.

When total expenditures are maximized, neither an increase or decrease in price will increase expenditures. This is only true when  $E = -1$ . The formula for price elasticity of demand is  $E = (\% \Delta Q) / (\% \Delta P)$ . If  $E > -1$  (that is, if demand is elastic) then  $(\% \Delta Q) > (\% \Delta P)$ . This implies that a relatively small decrease in price will increase sales by a relatively larger amount, so total expenditures on the good will increase. If  $E < -1$  (that is, if demand is inelastic) then  $(\% \Delta Q) < (\% \Delta P)$ . This implies that a relatively large increase in price will decrease sales by a relatively smaller amount, so total expenditures on the good will increase. Thus, when  $E = -1$ , total expenditures can be increased by lowering the price of the good.

*AACSB: Analytic*

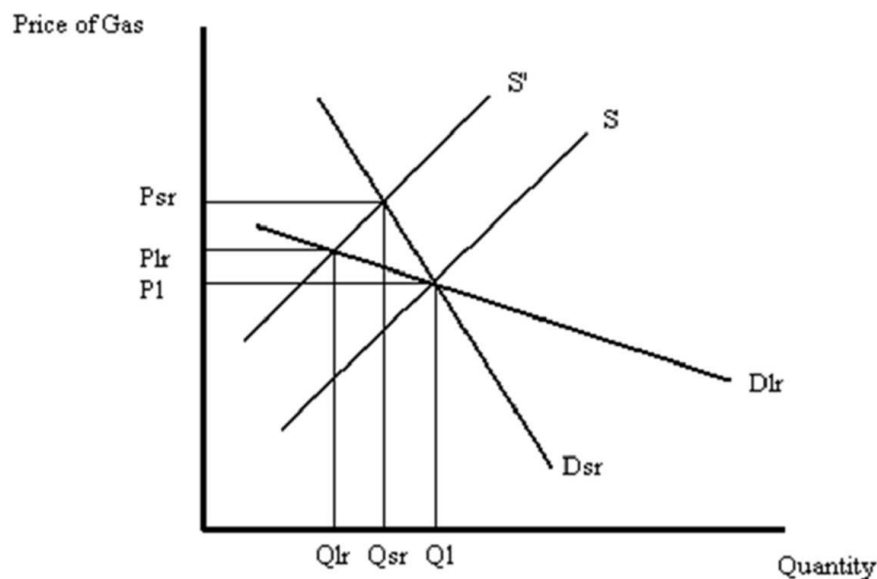
*Blooms: Apply*

*Difficulty: 3 Hard*

*Topic: Demand*

76. Suppose that an increase in oil prices causes the supply curve of gasoline to shift. Using a graph, illustrate the resulting changes in equilibrium price and quantity in both the short run and the long run.

The impact of a decrease in the supply of gasoline on the equilibrium price and quantity of gasoline depends upon the price elasticity of demand for gasoline. The demand for gasoline is much more inelastic in the short run than in the long run. Consumers have time to find substitutes (such as carpooling, more fuel efficient cars) in the long run. The situation is analyzed in the figure below. The market is originally in equilibrium at  $P_1$  and  $Q_1$ . The decrease in the supply of gasoline is shown by the leftward shift of the supply curve from  $S$  to  $S'$ . In the short run, the relatively inelastic demand for gasoline is shown by the relatively steep slope of demand curve  $D_{sr}$ . In the short run then, equilibrium price becomes  $P_{sr}$  and equilibrium quantity is  $Q_{sr}$ . In the long run, as consumers adjust to the higher price of gasoline, demand becomes more elastic. This is shown by the relatively flat slope of demand curve  $D_{lr}$ . In the long run, the equilibrium price is  $P_{lr}$  (which is less than  $P_{sr}$ ) and the equilibrium quantity is  $Q_{lr}$  (which is less than  $Q_{sr}$ ).



AACSB: Analytic  
Blooms: Apply  
Difficulty: 3 Hard  
Topic: Supply

77. Suppose the demand function for the Toyota Camry is given by  $Q_d = 500 - 12P_C + 10P_H - 5P_G + 0.0001M$ , where  $P_C$  is the price of the Toyota Camry (in thousands),  $P_H$  is the price of the Honda Accord (in thousands),  $P_G$  is the price of gas (per gallon) and  $M$  is income. Further, suppose the supply curve for the Toyota Camry is given by  $Q_s = 20P_C - 55$ .
- a. What is the demand curve for the Toyota Camry if the price of the Accord is \$25,000, gas is \$2 per gallon and income is \$50,000?
  - b. What is the equilibrium price and quantity in the market for Toyota Camrys?
  - c. Is demand elastic or inelastic at the equilibrium price?
  - d. What is the cross price elasticity of demand between Camrys and Accords at equilibrium?
  - e. What is the income elasticity of demand for Camrys at equilibrium?
- 
- a.  $Q_d = 745 - 12P_C$ .
  - b.  $P = \$25,000$ ,  $Q = 445$ .
  - c.  $-12 \times (25/445) = -0.67$ , which implies that demand is inelastic.
  - d.  $10 \times (25/445) = 0.56$ .
  - e.  $0.0001 \times (50,000/445) = 0.11$ .

*AACSB: Analytic**Blooms: Apply**Difficulty: 3 Hard**Topic: Elasticities of Demand and Supply*