

# Individual Markets: Demand and Supply

Chapter 3 introduces you to the most fundamental tools of economic analysis: demand and supply. To progress successfully into the later chapters, it is essential that you understand what is meant by demand and supply and how to use these powerful tools.

Demand and supply are simply “boxes” or categories into which all the forces and factors that affect the price and the quantity of a good bought and sold in a competitive market are placed. Demand and supply determine price and quantity exchange, and it is necessary to see *why* and *how* they do this.

Many students never learn to *define* demand and supply. They never learn (1) what an increase or decrease in demand or supply means, (2) the important distinctions between “demand” and “quantity demanded” and between “supply” and “quantity supplied,” and (3) the equally important distinctions between a change in demand and a change in quantity demanded, and between a change in supply and a change in quantity supplied.

Having learned these, however, it is no great trick to comprehend the so-called laws of demand and supply. The equilibrium price—that is, the price that will tend to prevail in the market as long as demand and supply do not change—is simply the price at which **quantity demanded** and **quantity supplied** are equal. The quantity bought and sold in the market (the equilibrium quantity) is the quantity demanded and supplied at the equilibrium price. If you can determine the equilibrium price and quantity under one set of demand and supply conditions, you can determine them under any other set.

This chapter includes a brief examination of the factors that determine demand and supply and the ways in which changes in these determinants will affect and cause changes in demand and supply. A graphic method is used in this analysis to illustrate demand and supply, equilibrium price and quantity, changes in demand and supply, and the resulting changes in equilibrium price and quantity. The **demand curve** and the **supply curve** are graphic (or geometric) representations of the same data contained in the schedules of demand and supply.

You will use supply and demand over and over. It will turn out to be as important to you in economics as jet propulsion is to the pilot of a Boeing 767: You can't get off the ground without it.

## ■ CHECKLIST

When you have studied this chapter you should be able to

- Define a market.

- Define demand and state the law of demand.
- Graph the demand curve when you are given a demand schedule.
- Explain the difference between individual demand and market demand.
- List the major determinants of demand and explain how each one shifts the demand curve.
- Distinguish between change in demand and change in the quantity demanded.
- Define supply and state the law of supply.
- Graph the supply curve when you are given a supply schedule.
- List the major determinants of supply and explain how each shifts the supply curve.
- Distinguish between change in supply and change in the quantity supplied.
- Define surplus and shortage.
- Describe how the equilibrium price and quantity are determined in a competitive market.
- Determine, when you are given the demand for and the supply of a good, the equilibrium price and the equilibrium quantity.
- Predict the effects of changes in demand and supply on equilibrium price and equilibrium quantity and on the prices of substitute and complementary goods.
- Explain the meaning of the rationing function of prices.
- Explain why violations of the “other-things-equal” assumption may cause confusion about the validity of the laws of demand and supply.
- Give a real-world application of supply and demand.

## ■ CHAPTER OUTLINE

**1. A market** is any institution or mechanism that brings together buyers (“demanders”) and sellers (“suppliers”) of a particular good or service. This chapter assumes that markets are highly competitive.

**2. Demand** is a schedule of prices and the quantities that buyers would purchase at each of these prices during a selected period of time.

- a. As price rises, other things being equal, buyers will purchase smaller quantities, and as price falls they will purchase larger quantities; this is the law of demand.
- b. The demand curve is a graphic representation of demand and the law of demand.
- c. Market (or total) demand for a good is a summation of the demands of all individuals in the market for that good.

d. The demand for a good depends on the tastes, income, and expectations of buyers; the number of buyers in the market; and the prices of related goods.

e. A change (increase or decrease) in the entire demand schedule and the demand curve is referred to as a **change in demand**. It is the result of a change in one or more of the determinants of demand. For example, an *increase* in the demand for a good may result from an increase in:

- (1) *tastes or preferences* for the good;
- (2) *the number of buyers* (for the good);
- (3) *income* if it is a normal good, but if it is a normal good, it may result from a decrease in income;
- (4) *the price of a related good*, but if they are complements, it may result from a decrease in the price of a related good; and
- (5) *expectations* of a price increase or a rise in income.

f. A change in demand and a change in the quantity demanded are *not* the same thing.

3. **Supply** is a schedule of prices and the quantities that sellers will sell at each of these prices during some period of time.

a. The supply schedule shows, other things equal, that as the price of the good rises larger quantities will be offered for sale, and as the price of the good falls, smaller quantities will be offered for sale.

b. The supply curve is a graphic representation of supply and the law of supply; the market supply of a good is the sum of the supplies of all sellers of the good.

c. The supply of a good depends on the techniques used to produce it, the prices of the resources employed in its production, the extent to which it is taxed or subsidized, the prices of other goods that might be produced, the price expectations of sellers, and the number of sellers of the product.

d. A change (increase or decrease) in the entire supply schedule and the supply curve is referred to as a **change in supply**. It is the result of a change in one or more of the determinants of supply. For example, an increase in supply for a good may result from:

- (1) a decrease in the *prices of resources* used to make it;
- (2) an improvement in the *technology* to produce it;
- (3) a fall in *taxes* on it, or an increase in *subsidies* for it;
- (4) a decline in the *prices of other goods* that could be produced by firms making it;
- (5) an increase or decrease (depending on the market in question) in *expectations* of its higher future prices; and
- (6) an increase in the number of sellers of it.

e. A change in supply must be distinguished from a change in quantity supplied.

4. The **market** or **equilibrium price** of a product is that price at which quantity demanded and quantity supplied are equal; the quantity exchanged in the market (the equilibrium quantity) is equal to the quantity demanded and supplied at the equilibrium price.

a. If the price of a product is above the market equilibrium price, there will be a **surplus** or *excess supply*. In this case, the quantity demanded is less than the quantity supplied at that price.

b. If the price of a product is below the market equilibrium price, there will be a **shortage** or *excess demand*. In this case, the quantity demanded is greater than the quantity supplied at that price.

c. The rationing function of prices is the elimination of surpluses and shortages of a product.

d. A change in demand, supply, or both, changes both the equilibrium price and the equilibrium quantity in specific ways. (See #4 in "Hints and Tips" section.)

e. When demand and supply schedules (or curves) are drawn up, it is assumed that all the nonprice determinants of demand and supply remain unchanged. This assumption is often stated as "other-things-equal."

f. There are many real-world examples of the application of supply and demand.

## ■ HINTS AND TIPS

1. This chapter is the most important one in the book. Make sure you spend extra time on it and master the material. If you do, your long-term payoff will be a much easier understanding of the applications in later chapters.

2. One mistake students often make is to confuse **change in demand** with **change in quantity demanded**. A change in demand causes the entire demand curve to *shift*, whereas a change in quantity demanded is simply a *movement* along an existing demand curve.

3. It is strongly recommended that you draw supply and demand graphs as you work on supply and demand problems so you can see a picture of what happens when demand shifts, supply shifts, or both demand and supply shift.

4. Make a chart and related graphs that show the eight possible outcomes from changes in demand and supply. Figure 3–6 in the text illustrates the *four single shift* outcomes:

- |  |  |
|--|--|
| (1) $D \uparrow: P \uparrow, Q \uparrow$       | (3) $S \uparrow: P \downarrow, Q \uparrow$   |
| (2) $D \downarrow: P \downarrow, Q \downarrow$ | (4) $S \downarrow: P \uparrow, Q \downarrow$ |

Four *shift combinations* are described in Table 3–9 of the text. Make a figure to illustrate each combination.

- |   |   |
|---|---|
| (1) $S \uparrow, D \downarrow: P \downarrow, Q ?$ | (3) $S \uparrow, D \uparrow: P ?, Q \uparrow$       |
| (2) $S \downarrow, D \uparrow: P \uparrow, Q ?$   | (4) $S \downarrow, D \downarrow: P ?, Q \downarrow$ |

5. Make sure you understand the "other-things-equal" assumption described at the end of the chapter. It will help you understand why the law of demand is not violated even if the price and quantity of a product increase over time.

## ■ IMPORTANT TERMS

market

demand

demand schedule

change in demand

change in quantity

demand

law of demand	supply
diminishing marginal utility	supply schedule
quantity demanded	law of supply
income effect	quantity supplied
substitution effect	supply curve
demand curve	determinants of supply
individual demand	change in supply
total or market demand	change in quantity supplied
determinants of demand	surplus
normal good	shortage
inferior good	equilibrium price
substitute goods	equilibrium quantity
complementary goods	rationing function of prices

**SELF-TEST**

■ **FILL-IN QUESTIONS**

1. A market is the institution or mechanism that brings together buyers or (demanders, suppliers) \_\_\_\_\_ and sellers or \_\_\_\_\_ of a particular good or service.
2. In resource markets prices are determined by the demand decisions of (businesses, households) \_\_\_\_\_ and the supply decisions of \_\_\_\_\_.
3. In product markets prices are determined by demand decisions of (businesses, households) \_\_\_\_\_ and the supply decisions of \_\_\_\_\_.
4. The relationship between price and quantity in the demand schedule is (a direct, an inverse) \_\_\_\_\_ relationship; in the supply schedule the relationship is \_\_\_\_\_ one.
5. The added satisfaction or pleasure a consumer obtains from additional units of a product decreases as the consumer's consumption of the product increases. This phenomenon is called diminishing marginal (equilibrium, utility) \_\_\_\_\_.
6. A consumer tends to buy more of a product as its price falls because
  - a. The purchasing power of the consumer is increased and the consumer tends to buy more of this product (and of other products); this is called the (income, substitution) \_\_\_\_\_ effect;
  - b. The product becomes less expensive relative to similar products and the consumer tends to buy more of the original product and less of the similar products, which is called the \_\_\_\_\_ effect.

7. When demand or supply is graphed, price is placed on the (horizontal, vertical) \_\_\_\_\_ axis and quantity on the \_\_\_\_\_ axis.
8. The change from an individual to a market demand schedule involves (adding, multiplying) \_\_\_\_\_ the quantities demanded by each consumer at the various possible (incomes, prices) \_\_\_\_\_.
9. When the price of one product and the demand for another product are directly related, the two products are called (substitutes, complements) \_\_\_\_\_; however, when the price of one product and the demand for another product are inversely related, the two products are called \_\_\_\_\_.

10. When a consumer demand schedule or curve is drawn up, it is assumed that five factors that determine demand are fixed and constant. These five determinants of consumer demand are

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_

11. A decrease in demand means that consumers will buy (larger, smaller) \_\_\_\_\_ quantities at every price, or will pay (more, less) \_\_\_\_\_ for the same quantities.

12. A change in income or in the price of another product will result in a change in the (demand for, quantity demanded of) \_\_\_\_\_ the given product, while a change in the price of the given product will result in a change in the \_\_\_\_\_ the given product.

13. An increase in supply means that producers will make and be willing to sell (larger, smaller) \_\_\_\_\_ quantities at every price, or will accept (more, less) \_\_\_\_\_ for the same quantities.

14. A change in resource prices or the prices of other goods that could be produced will result in a change in the (supply, quantity supplied) \_\_\_\_\_ of the given product, but a change in the price of the given product will result in a change in the \_\_\_\_\_.

15. The fundamental factors that determine the supply of any commodity in the product market are

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

- e. \_\_\_\_\_
- f. \_\_\_\_\_

16. If quantity demanded is greater than quantity supplied, price is (above, below) \_\_\_\_\_ the equilibrium price; and the (shortage, surplus) \_\_\_\_\_ will cause the price to (rise, fall) \_\_\_\_\_. If quantity demanded is less than the quantity supplied, price is (above, below) \_\_\_\_\_ the equilibrium price, and the (shortage, surplus) \_\_\_\_\_ will cause the price to (rise, fall) \_\_\_\_\_.

17. The equilibrium price of a product is the price at which quantity demanded is (greater than, equal to) \_\_\_\_\_ quantity supplied, and there (is, is not) \_\_\_\_\_ a surplus or a shortage at that price.

18. In the space next to a–h, indicate the effect [*increase* (+), *decrease* (-), or *indeterminate* (?)] on equilibrium price (*P*) and equilibrium quantity (*Q*) of each of these changes in demand and/or supply.

	<i>P</i>	<i>Q</i>
a. Increase in demand, supply constant	_____	_____
b. Increase in supply, demand constant	_____	_____
c. Decrease in demand, supply constant	_____	_____
d. Decrease in supply, demand constant	_____	_____
e. Increase in demand, increase in supply	_____	_____
f. Increase in demand, decrease in supply	_____	_____
g. Decrease in demand, decrease in supply	_____	_____
h. Decrease in demand, increase in supply	_____	_____

19. If supply and demand establish a price for a good so that there is no shortage or surplus of the product, then price is successfully performing its (utility, rationing) \_\_\_\_\_ function. The price that is set is a market-(changing, clearing) \_\_\_\_\_ price.

20. To assume that all the determinants of demand and supply do not change is to employ the (marginal utility, other-things-equal) \_\_\_\_\_ assumption.

■ TRUE-FALSE QUESTIONS

Circle *T* if the statement is true, *F* if it is false.

1. A market is any arrangement that brings together the buyers and sellers of a particular good or service. T F

2. Demand is the amount of a good or service that a buyer will purchase at a particular price. T F

3. The law of demand states that as price increases, other things being equal, the quantity of the product demanded increases. T F

4. The law of diminishing marginal utility is one explanation of why there is an inverse relationship between price and quantity demanded. T F

5. The substitution effect suggests that, at a lower price, you have the incentive to substitute the more expensive product for similar products which are relatively less expensive. T F

6. There is no difference between individual demand schedules and the market demand schedule for a product. T F

7. In graphing supply and demand schedules, supply is put on the horizontal axis and demand on the vertical axis. T F

8. If price falls, there will be an increase in demand. T F

9. If consumer tastes or preferences for a product decrease, the demand for the product will tend to decrease. T F

10. An increase in income will tend to increase the demand for a product. T F

11. When two products are substitute goods, the price of one and the demand for the other will tend to move in the same direction. T F

12. If two goods are complementary, an increase in the price of one will tend to increase the demand for the other. T F

13. A change in the quantity demanded means that there has been a change in demand. T F

14. Supply is a schedule that shows the amounts of a product a producer can make in a limited time period. T F

15. An increase in resource prices will tend to decrease supply. T F

16. A government subsidy for the production of a product will tend to decrease supply. T F

17. An increase in the prices of other goods that could be made by producers will tend to decrease the supply of the current good that the producer is making. T F

18. A change in supply means that there is a movement along an existing supply curve. T F

19. A surplus indicates that the quantity demanded is less than the quantity supplied at that price. T F

20. If the market price of a product is below its equilibrium price, the market price will tend to rise because demand will decrease and supply will increase. T F

21. The equilibrium price of a good is the price at which the demand and the supply of the good are equal.

T F

22. The rationing function of prices is the elimination of shortages and surpluses.

T F

23. If the supply of a product increases and demand decreases, the equilibrium price and quantity will increase.

T F

24. If the demand for a product increases and the supply of the product decreases, the equilibrium price will increase and equilibrium quantity will be indeterminate.

T F

25. Economists often make the assumption of other things equal to hold constant the effects of other factors when examining the relationship between prices and quantities demanded and supplied.

T F

#### ■ MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

- The markets examined in this chapter
  - sell nonstandard or differentiated products
  - have buyers cooperating to determine prices
  - are controlled by a single producer
  - are highly competitive
- A schedule that shows the various amounts of a product consumers are willing and able to purchase at each price in a series of possible prices during a specified period of time is called
  - supply
  - demand
  - quantity supplied
  - quantity demanded
- The reason for the law of demand can best be explained in terms of
  - supply
  - complementary goods
  - the rationing function of prices
  - diminishing marginal utility
- Assume that the price of video game players falls. What will most likely happen to the equilibrium price and quantity of video games, assuming this market is competitive?
  - Price will increase; quantity will decrease.
  - Price will decrease; quantity will increase.
  - Price will decrease; quantity will decrease.
  - Price will increase; quantity will increase.
- Given the following individuals' demand schedules for product X, and assuming these are the only three consumers of X, which set of prices and output levels below will be on the market demand curve for this product?

Price X	Consumer 1 $Q_{dx}$	Consumer 2 $Q_{dx}$	Consumer 3 $Q_{dx}$
\$5	1	2	0
4	2	4	0
3	3	6	1
2	4	8	2
1	5	10	3

- (\$5, 2); (\$1, 10)
- (\$5, 3); (\$1, 18)
- (\$4, 6); (\$2, 12)
- (\$4, 0); (\$1, 3)

6. Which factor will decrease the demand for a product?

- a favorable change in consumer tastes
- an increase in the price of a substitute good
- a decrease in the price of a complementary good
- a decrease in the number of buyers

7. The income of a consumer decreases and the consumer's demand for a particular good increases. It can be concluded that the good is

- normal
- inferior
- a substitute
- a complement

8. Which of the following could cause a decrease in consumer demand for product X?

- a decrease in consumer income
- an increase in the prices of goods that are good substitutes for product X
- an increase in the price that consumers expect will prevail for product X in the future
- a decrease in the supply of product X

9. If two goods are substitutes for each other, an increase in the price of one will necessarily

- decrease the demand for the other
- increase the demand for the other
- decrease the quantity demanded of the other
- increase the quantity demanded of the other

10. If two products, A and B, are complements, then

- an increase in the price of A will decrease the demand for B
- an increase in the price of A will increase the demand for B
- an increase in the price of A will have no significant effect on the price of B
- a decrease in the price of A will decrease the demand for B

11. If two products, X and Y, are independent goods, then

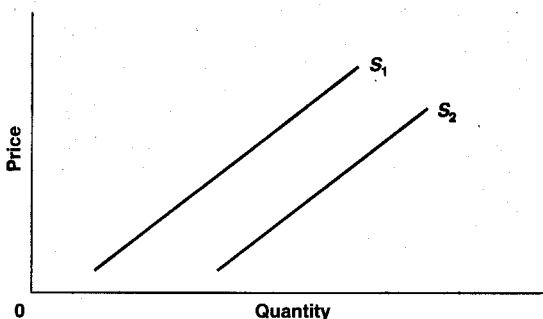
- an increase in the price of X will significantly increase the demand for Y
- an increase in the price of Y will significantly increase the demand for X
- an increase in the price of Y will have no significant effect on the demand for X
- a decrease in the price of X will significantly increase the demand for Y

12. The law of supply states that, other things being constant, as price increases

- (a) supply increases
- (b) supply decreases
- (c) quantity supplied increases
- (d) quantity supplied decreases

13. If the supply curve moves from  $S_1$  to  $S_2$  on the graph below, there has been

- (a) an increase in supply
- (b) a decrease in supply
- (c) an increase in quantity supplied
- (d) a decrease in quantity supplied



14. A decrease in the supply of a product would most likely be caused by

- (a) an increase in business taxes
- (b) an increase in consumer incomes
- (c) a decrease in resource costs for production
- (d) a decrease in the price of a complementary good

15. Which of the following could not cause an increase in the supply of cotton?

- (a) an increase in the price of cotton
- (b) improvements in the technology of producing cotton
- (c) a decrease in the price of the machinery and tools employed in cotton production
- (d) a decrease in the price of corn

16. If the quantity supplied of a product is greater than the quantity demanded for a product, then

- (a) there is a shortage of the product
- (b) there is a surplus of the product
- (c) the product is a normal good
- (d) the product is an inferior good

17. When government sets the price of a good and that price is below the equilibrium price, the result will be

- (a) a surplus of the good
- (b) a shortage of the good
- (c) an increase in the demand for the good
- (d) a decrease in the supply of the good

Answer Questions 18, 19, and 20 on the basis of the data in the the following table. Consider the following supply and demand schedules for bushels of corn.

Price	Quantity demanded	Quantity supplied
\$20	395	200
22	375	250
24	350	290
26	320	320
28	280	345
30	235	365

18. The equilibrium price in this market is

- (a) \$22
- (b) \$24
- (c) \$26
- (d) \$28

19. An increase in the cost of labor lowers the quantity supplied by 65 bushels at each price. The new equilibrium price would be

- (a) \$22
- (b) \$24
- (c) \$26
- (d) \$28

20. If the quantity demanded at each price increases by 130 bushels, then the new equilibrium quantity will be

- (a) 290
- (b) 320
- (c) 345
- (d) 365

21. A decrease in supply and a decrease in demand will

- (a) increase price and decrease the quantity exchanged
- (b) decrease price and increase the quantity exchanged
- (c) increase price and affect the quantity exchanged in an indeterminate way
- (d) affect price in an indeterminate way and decrease the quantity exchanged

22. An increase in demand and a decrease in supply will

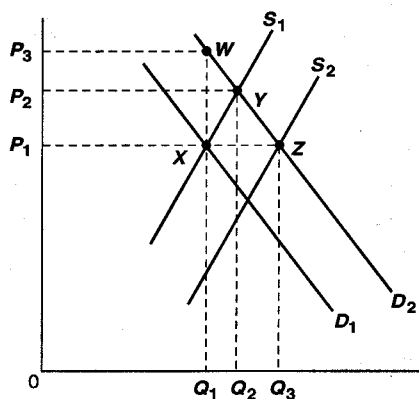
- (a) increase price and increase the quantity exchanged
- (b) decrease price and decrease the quantity exchanged
- (c) increase price and the effect upon quantity exchanged will be indeterminate
- (d) decrease price and the effect upon quantity exchanged will be indeterminate

23. An increase in supply and an increase in demand will:

- (a) increase price and increase the quantity exchanged
- (b) decrease price and increase the quantity exchanged
- (c) affect price in an indeterminate way and decrease the quantity exchanged
- (d) affect price in an indeterminate way and increase the quantity exchanged

24. A cold spell in Florida devastates the orange crop. As a result, California oranges command a higher price. Which of the following statements best explains the situation?
- (a) The supply of Florida oranges decreases, causing the supply of California oranges to increase and their price to increase.
  - (b) The supply of Florida oranges decreases, causing their price to increase and the demand for California oranges to increase.
  - (c) The supply of Florida oranges decreases, causing the supply of California oranges to decrease and their price to increase.
  - (d) The demand for Florida oranges decreases, causing a greater demand for California oranges and an increase in their price.

Answer Questions 25, 26, 27, 28, and 29 based on the following graph showing the market supply and demand for a product.



25. Assume that the market is initially in equilibrium where  $D_1$  and  $S_1$  intersect. If there is an increase in the number of buyers, then the new equilibrium would most likely be at point
- (a) W
  - (b) X
  - (c) Y
  - (d) Z
26. Assume that the equilibrium price and quantity in the market are  $P_2$  and  $Q_2$ . Which factor would cause the equilibrium price and quantity to shift to  $P_1$  and  $Q_3$ ?
- (a) an increase in product price
  - (b) an increase in demand
  - (c) an increase in supply
  - (d) a decrease in quantity
27. If the market equilibrium was at point Y but the price of the product was set at  $P_1$ , then there would be a
- (a) surplus of  $Q_3 - Q_1$
  - (b) shortage of  $Q_3 - Q_1$
  - (c) surplus of  $Q_1 - Q_2$
  - (d) shortage of  $Q_2 - Q_1$
28. What would cause a shift in the equilibrium price and quantity from point Z to point X?
- (a) a decrease in production costs and more favorable consumer tastes for the product

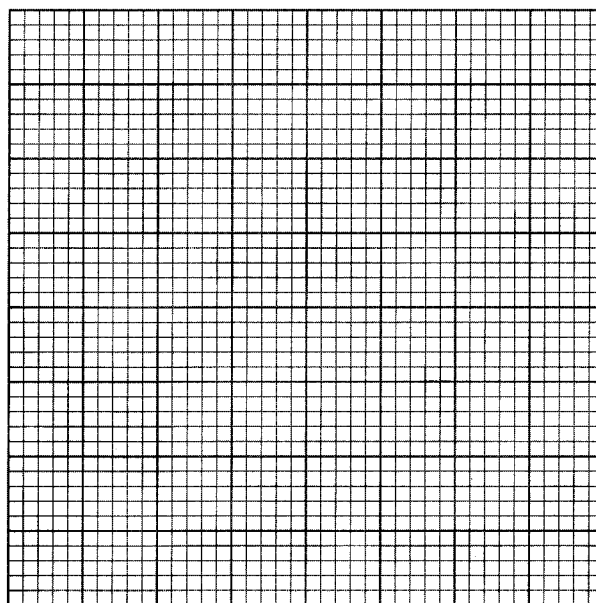
- (b) an increase in the number of suppliers and an increase in consumer incomes
- (c) an increase in production costs and decrease in consumer incomes
- (d) an improvement in production technology and decrease in the price of a substitute good

29. Assume that the market is initially in equilibrium where  $D_1$  and  $S_1$  intersect. If consumer incomes increased and the technology for making the product improved, then new equilibrium would most likely be at
- (a)  $P_1$  and  $Q_1$
  - (b)  $P_2$  and  $Q_2$
  - (c)  $P_1$  and  $Q_3$
  - (d)  $P_3$  and  $Q_1$
30. The demand curve and its inverse relationship between price and quantity demanded is based on the assumption of
- (a) other things equal
  - (b) changing expectations
  - (c) complementary goods
  - (d) increasing marginal utility

■ PROBLEMS

1. Using the demand schedule that follows: plot the demand curve on the graph below the schedule. Label the axes and indicate for each axis the units being used to measure price and quantity.

Price	Quantity demanded, 1000 bushels of soybeans
\$7.20	10
7.00	15
6.80	20
6.60	25
6.40	30
6.20	35



a. Plot the following supply schedule on the same graph.

Price	Quantity supplied, 1000 bushels of soybeans
\$7.20	40
7.00	35
6.80	30
6.60	25
6.40	20
6.20	15

- b. The equilibrium price of soybeans will be \$\_\_\_\_\_.
- c. How many thousand bushels of soybeans will be exchanged at this price? \_\_\_\_\_
- d. Indicate clearly on the graph the equilibrium price and quantity by drawing lines from the intersection of the supply and demand curves to the price and quantity axes.
- e. If the Federal government supported a price of \$7.00 per bushel there would be a (shortage, surplus) \_\_\_\_\_ of \_\_\_\_\_ bushels of soybeans.

2. The demand schedules of three individuals (Ellie, Sam, and Lynn) for loaves of bread are shown in the following table. Assuming there are only three buyers of bread, determine and graph the total or market demand schedule for bread.

Price	Quantity demanded, loaves of bread			Total
	Ellie	Sam	Lynn	
\$1.50	1	4	0	_____
1.40	3	5	1	_____
1.30	6	6	5	_____
1.20	10	7	10	_____
1.10	15	8	16	_____

3. Following is a demand schedule for bushels of apples. In columns 3 and 4 insert *any* new figures for quantity that represent in column 3 an increase in demand and in column 4 a decrease in demand.

(1) Price	(2) Quantity demanded	(3) Demand increases	(4) Demand decreases
\$6.00	400	_____	_____
5.90	500	_____	_____
5.80	600	_____	_____
5.70	700	_____	_____
5.60	800	_____	_____
5.50	900	_____	_____

4. Assume that O'Rourke has, when his income is \$100 per week, the demand schedule for good A shown in columns 1 and 2 of the following table and the demand schedule for good B shown in columns 4 and 5. Assume that the prices of A and B are \$.80 and \$5, respectively.

Demand for A (per week)			Demand for B (per week)		
(1) Price	(2) Quantity demanded	(3) Quantity demanded	(4) Price	(5) Quantity demanded	(6) Quantity demanded
\$.90	10	0	\$5.00	4	7
.85	20	10	4.50	5	8
.80	30	20	4.00	6	9
.75	40	30	3.50	7	10
.70	50	40	3.00	8	11
.65	60	50	2.50	9	12
.60	70	60	2.00	10	13

- a. How much A will O'Rourke buy? \_\_\_\_\_
- How much B? \_\_\_\_\_
- b. Suppose that as a consequence of a \$10 increase in O'Rourke's weekly income, the quantities demanded of A become those shown in column 3 and the quantities demanded of B become those shown in column 6.
- (1) How much A will he now buy? \_\_\_\_\_
- How much B? \_\_\_\_\_
- (2) Good A is (normal, inferior) \_\_\_\_\_.
- (3) Good B is \_\_\_\_\_.

5. The market demand for good X is shown in columns 1 and 2 of the following table. Assume the price of X to be \$2 and constant.

(1) Price	(2) Quantity demanded	(3) Quantity demanded	(4) Quantity demanded
\$2.40	1,600	1,500	1,700
2.30	1,650	1,550	1,750
2.20	1,750	1,650	1,850
2.10	1,900	1,800	2,000
2.00	2,100	2,000	2,200
1.90	2,350	2,250	2,450
1.80	2,650	2,550	2,750

- a. If as the price of good Y rises from \$1.25 to \$1.35, the quantities demanded of good X become those shown in column 3, it can be concluded that X and Y are (substitute, complementary) \_\_\_\_\_ goods.
- b. If as the price of good Y rises from \$1.25 to \$1.35, the quantities of good X become those shown in column 4, it can be concluded that X and Y are \_\_\_\_\_ goods.

6. In a local market for hamburger on a given date, each of 300 identical sellers of hamburger has the following supply schedule.

(1) Price	(2) Quantity supplied— one seller, lbs	(3) Quantity supplied— all sellers, lbs
\$2.05	150	_____
2.00	110	_____
1.95	75	_____
1.90	45	_____
1.85	20	_____
1.80	0	_____



- a. In column 3 construct the market supply schedule for hamburger.
- b. Following is the market demand schedule for hamburger on the same date and in the same local market as that given above.

Price	Quantity demanded, lbs
\$2.05	28,000
2.00	31,000
1.95	36,000
1.90	42,000
1.85	49,000
1.80	57,000

If the Federal government sets a price on hamburger of \$1.90 a pound, the result would be a (shortage, surplus) \_\_\_\_\_ of \_\_\_\_\_ pounds of hamburger in this market.

7. Each of the following events would tend to increase or decrease either the demand for or the supply of computer games and, as a result, will increase or decrease the price of these games. In the first blank indicate the effect on demand or supply (increase, decrease); in the second blank, indicate the effect on price (increase, decrease). Assume that the market for computer games is a competitive one.

a. It becomes known that an electronics store is going to have a sale on these games 3 months from now.  
\_\_\_\_\_;

b. The workers who produce the games go on strike for over 2 months. \_\_\_\_\_;

c. The workers in the industry receive a \$2 an hour wage increase. \_\_\_\_\_;

d. The average price of movie tickets increases.  
\_\_\_\_\_;

e. The price of business software, a product also supplied by the computer software producers, rises.  
\_\_\_\_\_;

f. It is announced by a private research institute that children who play computer games also improve their grades in school. \_\_\_\_\_;

g. Because of the use of mass production techniques, the amount of labor necessary to produce a game decreases. \_\_\_\_\_;

h. The price of computers increases. \_\_\_\_\_;

i. The average consumer believes that a shortage of games is developing in the economy. \_\_\_\_\_;

j. The Federal government imposes a \$5 per game tax on the manufacturers of computer games.  
\_\_\_\_\_;

## ■ SHORT ANSWER AND ESSAY QUESTIONS

1. What is a market? Define it and give examples.
2. Define demand and the law of demand.
3. What are three possible explanations for the inverse relationship between price and quantity demanded?
4. In past decades, the price of coffee in the United States rose significantly as a result of bad weather in coffee-producing regions. Use the income effect and the substitution effect concepts to explain why the quantity of coffee demanded in the United States significantly decreased.
5. Use the diminishing marginal utility concept to explain why the quantity demanded of a product will tend to rise when the price of the product falls.
6. What is the difference between individual demand and market demand? What is the relationship between these two types of demand?
7. Explain the difference between an increase in demand and an increase in the quantity demanded.
8. What are the factors that cause a change in demand? Use supply and demand graphs to illustrate what happens to price and quantity when demand increases.
9. How are inferior and normal (or superior) goods defined? What is the relationship between these goods and changes in income?
10. Why does the effect of a change in the price of related goods depend on whether a good is a substitute or complement? What are substitutes and complements?
11. A newspaper reports that "Blue jeans have become even more popular and are now the standard clothing that people wear for both play and work." How will this change affect the demand and supply of blue jeans? What will happen to the price and quantity of blue jeans sold in the market? Explain and use a supply and demand graph to illustrate your answer.
12. Compare and contrast the supply schedule with the demand schedule.
13. Supply does not remain constant for long because the factors that determine supply change. What are these factors? How do changes in them affect supply?
14. Explain the difference between an increase in supply and an increase in the quantity supplied.
15. Describe and illustrate with a supply and demand graph the effect of an increase in supply on price and quantity. Do the same for a decrease in supply.
16. The U.S. Congress passes a law that raises the excise tax on gasoline by \$1 per gallon. What effect will this change have on the demand and supply of gasoline? What will happen to gasoline prices and quantity? Explain and use a supply and demand graph to illustrate your answer.

**17.** What is the relationship between the price of a product and a shortage of the product? What is the relationship between the price of a product and a surplus of the product?

**18.** Given the demand for and the supply of a commodity, what price will be the equilibrium price of this commodity? Explain why this price will tend to prevail in the market and why higher (lower) prices, if they do exist temporarily, will tend to fall (rise).

**19.** Analyze the following quotation and explain the fallacies contained in it: "An increase in demand will cause price to rise; with a rise in price, supply will increase and the increase in supply will push price down. Therefore, an increase in demand results in little change in price because supply will increase also."

**20.** Suppose an industry sells 2000 units of a product at \$10 per unit one year, 3000 units at \$12 the next year, and 4000 units at \$14 the third year. Is this evidence that the law of demand is violated? Explain.