

### ■ IMPORTANT TERMS

Note: See the Glossary in the back of the book for definitions of terms.

economics	budget line
economic perspective	economic resources
opportunity cost	land
utility	labor
marginal analysis	capital
scientific method	investment
economic principle	entrepreneurial ability
other-things-equal assumption	factors of production
( <i>ceteris paribus</i> )	consumer goods
microeconomics	capital goods
macroeconomics	production possibilities curve
aggregate	law of increasing opportunity costs
positive economics	economic growth
normative economics	
economizing problem	

### SELF-TEST

#### ■ FILL-IN QUESTIONS

- The economic perspective recognizes that (resources, scarcity) \_\_\_\_\_ require(s) choice and that choice has an opportunity (benefit, cost) \_\_\_\_\_. "There is no such thing as a free lunch" in economics because scarce resources have (unlimited, alternative) \_\_\_\_\_ uses.
- The economic perspective also assumes that people make choices based on their self-interest and that they are (random, purposeful) \_\_\_\_\_. It also is based on comparisons of the (extreme, marginal) \_\_\_\_\_ costs and benefits of an economic decision.
- Economics relies \_\_\_\_\_ on the (model, scientific) \_\_\_\_\_ method. Statements about economic behavior that enable the prediction of the likely effects of certain actions are economic (facts, theories) \_\_\_\_\_. The most well-tested of these that have strong predictive accuracy, are called economic (hypotheses, principles) \_\_\_\_\_ or sometimes they are called (laws, actions) \_\_\_\_\_. Simplified representations of economic behavior or how an economy works are called (policies, models) \_\_\_\_\_.
- Economic principles are often expressed as tendencies or what is typical, and are (fallacies, generalizations) \_\_\_\_\_ about people's economic behavior. When studying a relationship between two economic variables, economists assume that other variables or factors (do,

do not) \_\_\_\_\_ change, or in other words they are using the (utility, other-things-equal) \_\_\_\_\_ assumption.

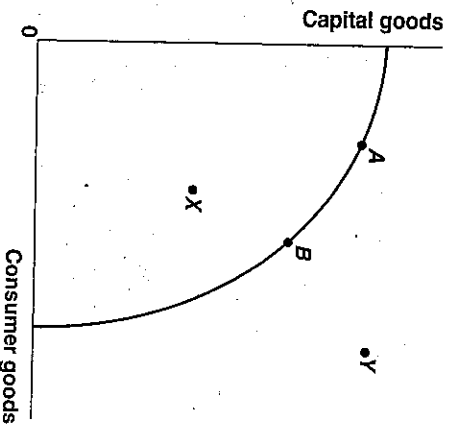
- The study of output in a particular industry or of a particular product is the subject of (microeconomics, macroeconomics) \_\_\_\_\_, and the study of the total output of the economy or the general level of prices is the subject of \_\_\_\_\_.
- The collection of specific units that are being added and treated as if they were one unit is an (assumption, aggregate) \_\_\_\_\_.
- Two different types of statements can be made about economic topics. A (positive, normative) \_\_\_\_\_ statement explains what is, by offering a scientific proposition about economic behavior that is based on economic theory and facts, but a \_\_\_\_\_ statement includes a value judgment about an economic policy or the economy that suggests what ought to be. Many of the reported disagreements among economists usually involve (positive, normative) \_\_\_\_\_ statements.
- The economizing problem arises because individuals' and society's economic wants for more goods and services or higher-quality goods and services are (limited, unlimited) \_\_\_\_\_ and the economic means or resources to satisfy those wants are \_\_\_\_\_.
- A schedule or curve that shows the various combinations of two products a consumer can (buy, sell) \_\_\_\_\_ with a money income is called (a budget, marginal cost) \_\_\_\_\_ line.
- All combinations of goods inside a budget line are (attainable, unattainable) \_\_\_\_\_, and all combinations of goods outside the budget line are \_\_\_\_\_.
- When a consumer's income increases, the budget line shifts to the (left, right) \_\_\_\_\_, while a decrease in income shifts the budget line to the \_\_\_\_\_.
- The four types of economic resources are
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
- When a production possibilities table or curve is constructed, four assumptions are made:
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_

14. Goods that satisfy economic wants directly are (consumer, capital goods) \_\_\_\_\_ and goods that do so indirectly by helping produce other goods are \_\_\_\_\_ goods. Assume an economy can produce two basic types of goods, consumer and capital goods. If the economy wants to produce more consumer goods, then the capital goods the economy must give up are the opportunity (benefit, cost) \_\_\_\_\_ of producing those additional consumer goods.

15. The law of increasing opportunity costs explains why the production possibilities curve is (convex, concave) \_\_\_\_\_ from the origin. The economic rationale for the law is that economic resources (are, are not) \_\_\_\_\_ completely adaptable to alternative uses.

16. Optimal allocation of resources to production occurs when the marginal costs of the productive output are (greater than, less than, equal to) \_\_\_\_\_ the marginal benefits.

17. Following is a production possibilities curve for capital goods and consumer goods.



- a. If the economy moves from point **A** to point **B**, it will produce (more, fewer) \_\_\_\_\_ capital goods and (more, fewer) \_\_\_\_\_ consumer goods.
- b. If the economy is producing at point **X**, some resources in the economy are either (not available, unemployed) \_\_\_\_\_ or (underemployed, overemployed) \_\_\_\_\_.
- c. If the economy moves from point **X** to point **B** (more, fewer) \_\_\_\_\_ capital goods and (more, fewer) \_\_\_\_\_ consumer goods will be produced.
- d. If the economy is to produce at point **Y**, there must be (unemployment, economic growth) \_\_\_\_\_.

18. Economic growth will shift a nation's production possibilities curve (inward, outward) \_\_\_\_\_ and it

occurs because of a resource supply (decrease, increase) \_\_\_\_\_ or because of a technological (decline, advance) \_\_\_\_\_.

19. An economy can produce goods for the present such as (consumer, capital) \_\_\_\_\_ goods and goods for the future such as \_\_\_\_\_ goods. If an economy produces more goods for the future, then this is likely to lead to a (greater, smaller) \_\_\_\_\_ shift outward in the production possibilities curve over time compared to the case where the economy produces more goods for the present.

20. International specialization and trade enable a nation to obtain (more, less) \_\_\_\_\_ of output than is possible with the output limits imposed by domestic production possibilities. The gains in output for an economy from greater international specialization and trade are similar to those that occur because of resource (increases, decreases) \_\_\_\_\_ or a technological (decline, advance) \_\_\_\_\_.

#### TRUE-FALSE QUESTIONS

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

- Economics is the social science that studies how individuals, institutions, and society make choices under conditions of scarcity. T F
- From the economic perspective, "there is no such thing as a free lunch." T F
- The economic perspective views individuals or institutions as making purposeful choices based on the marginal analysis of the costs and benefits of decisions. T F
- The scientific method involves the observation of real world data, the formulation of hypotheses based on the data, and the testing of those hypotheses to develop theories. T F
- A well-tested or widely accepted economic theory is often called an economic principle or law. T F
- The other-things-equal assumption (*ceteris paribus*) is made to simplify the economic analysis. T F
- Microeconomic analysis is concerned with the performance of the economy as a whole or its major aggregates. T F
- Macroeconomic analysis is concerned with the economic activity of specific firms or industries. T F
- The statement that "the legal minimum wage should be raised to give working people a decent income" is an example of a normative statement. T F

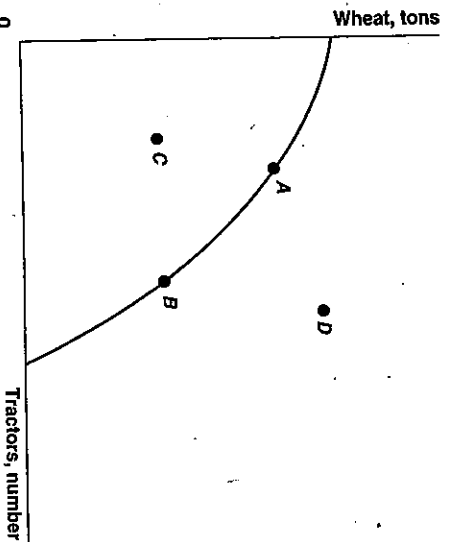
10. A person is using positive economics when the person makes value judgments about how the economy should work. T F
11. The conflict between the scarce economic wants of individuals or societies and limited economic means and resources of individuals or societies gives rise to the economizing problem. T F
12. The budget line shows all combinations of two products that the consumer can purchase, given money income and the prices of the products. T F
13. A consumer is unable to purchase any of the combinations of two products which lie below (or to the left) of the consumer's budget line. T F
14. An increase in the money income of a consumer shifts the budget line to the right. T F
15. The factors of production are land, labor, capital, and entrepreneurial ability. T F
16. From the economist's perspective, investment refers to money income. T F
17. Given full employment and optimal allocation, it is not possible for an economy capable of producing just two goods to increase its production of both at any one point in time. T F
18. The opportunity cost of producing more consumer goods is the other goods and services the economy is unable to produce because it has decided to produce these additional consumer goods. T F
19. The opportunity cost of producing a good tends to increase as more of it is produced because resources less suitable to its production must be employed. T F
20. Drawing a production possibilities curve bowed out from the origin is a graphical way of showing the law of increasing opportunity costs. T F
21. The economic rationale for the law of increasing opportunity costs is that economic resources are fully adaptable to alternative uses. T F
22. Optimal allocation is determined by assessing the marginal costs and benefits of the output from the allocation of resources to production. T F
23. Economic growth means an increase in the production of goods and services and is shown by a movement of the production possibilities curve outward and to the right. T F
24. The more capital goods an economy produces today, the greater will be the total output of all goods it can produce in the future, other things being equal. T F
25. International specialization and trade permit an economy to overcome the limits imposed by domestic production possibilities and have the same effect on the economy as having more and better resources. T F

### ■ MULTIPLE-CHOICE QUESTIONS

*Circle the letter that corresponds to the best answer.*

1. What statement would best complete a short definition of economics? "Economics studies \_\_\_\_\_"  
 (a) how businesses produce goods and services"  
 (b) the equitable distribution of society's income and wealth"  
 (c) the printing and circulation of money throughout the economy"  
 (d) how individuals, institutions, and society make optimal choices under conditions of scarcity"
2. The idea in economics that "there is no such thing as a free lunch" means that  
 (a) the marginal benefit of such a lunch is greater than its marginal cost  
 (b) businesses cannot increase their market share by offering free lunches  
 (c) scarce resources have alternative uses or opportunity costs  
 (d) consumers are irrational when they ask for a free lunch
3. The opportunity cost of a new public stadium is the  
 (a) money cost of hiring guards and staff for the new stadium  
 (b) cost of constructing the new stadium in a future year  
 (c) change in the real estate tax rate to pay off the new stadium  
 (d) other goods and services that must be sacrificed to construct the new stadium
4. From the economic perspective, when a business decides to employ more workers, the business decision maker has most likely concluded that the marginal  
 (a) costs of employing more workers have decreased  
 (b) benefits of employing more workers have increased  
 (c) benefits of employing more workers are greater than the marginal costs  
 (d) costs of employing more workers are not opportunity costs for the business because more workers are needed to increase production
5. The combination of economic theories or principles into a simplified representation of reality is referred to as an economic:  
 (a) fact  
 (b) model  
 (c) assumption  
 (d) hypothesis
6. Which would be studied in microeconomics?  
 (a) the output of the entire U.S. economy  
 (b) the general level of prices in the U.S. economy  
 (c) the output and price of wheat in the United States  
 (d) the total number of workers employed in the United States

Answer Questions 20, 21, and 22 based on the following graph for an economy.



20. Unemployment and productive inefficiency would best be represented in the graph by point:
- A
  - B
  - C
  - D
21. The choice of point **B** over point **A** as the optimal product mix for society would be based on
- the state of technology
  - full employment of resources
  - the law of increasing marginal costs and benefits
  - a comparison of marginal costs and benefits
22. Economic growth could be represented by
- a movement from point **A** to point **B**
  - a movement from point **B** to point **A**
  - a shift in the production possibilities curve out to point **C**
  - a shift in the production possibilities curve out to point **D**
23. If there is an increase in the resources available within the economy,
- the economy will be capable of producing fewer goods
  - the economy will be capable of producing more goods
  - the standard of living in the economy will decline
  - the state of technology will deteriorate
24. Which situation would most likely shift the production possibilities curve for a nation in an outward direction?
- deterioration in product quality
  - reductions in the supply of resources
  - increases in technological advance
  - rising levels of unemployment
25. You observe that more education is associated with more income and conclude that more income leads to more education. This would be an example of
- the post hoc fallacy
  - the fallacy of composition

- confusing correlation and causation
- using the other-things-equal assumption

#### PROBLEMS

- Use the appropriate number to match the terms with the phrases below.
 

1. economics	4. normative economics
2. microeconomics	5. macroeconomics
3. positive economics	6. marginal analysis

  - The attempt to establish scientific statements about economic behavior; a concern with "what is" rather than "what ought to be."
  - Part of economics that involves value judgments about what the economy should be like or the way the economic world should be.
  - Social science that studies how individuals, institutions, and society make optimal choices under conditions of scarcity.
  - Part of economics concerned with the economic behavior of individual units such as households, firms, and industries (particular markets).
  - The comparison of additional benefits and additional costs.
  - Part of economics concerned with the whole economy or its major sectors.
- News report:** "The worldwide demand for wheat from the United States increased and caused the price of wheat in the United States to rise." This is a *specific* instance of a more *general* economic principle. Of which economic *generalization* is this a particular example?
 

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- Following is a list of economic statements. Indicate in the space to the right of each statement whether it is positive (**P**) or normative (**N**). Then, in the last four lines below, write two of your own examples of positive economic statements and two examples of normative economic statements.
 

a. New York City should control the rental price of apartments.	
b. Consumer prices rose at an annual rate of 4% last year.	
c. Most people who are unemployed are just too lazy to work.	
d. Generally, if you lower the price of a product, people will buy more of that product.	

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e. The profits of oil companies are too large and ought to be used to conduct research on alternative energy sources.  
f. Government should do more to help the poor.

g. \_\_\_\_\_ P  
h. \_\_\_\_\_ P  
i. \_\_\_\_\_ N  
j. \_\_\_\_\_ N

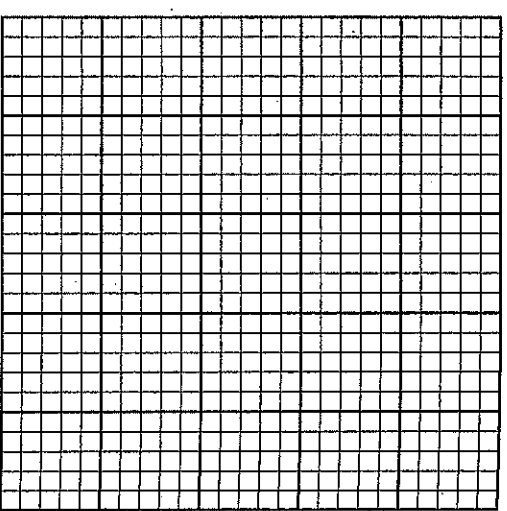
4. Following is a list of resources. Indicate in the space to the right of each whether the resource is land (LD), labor (LR), capital (C), entrepreneurial ability (EA), or some combinations of these resources.

- a. Fishing grounds in the North Atlantic \_\_\_\_\_
- b. A computer in a retail store \_\_\_\_\_
- c. Oil shale deposits in Canada \_\_\_\_\_
- d. An irrigation ditch in Nebraska \_\_\_\_\_
- e. Bill Gates in his work in starting Microsoft \_\_\_\_\_
- f. The oxygen breathed by human beings \_\_\_\_\_
- g. A McDonald's restaurant in Rochester, Minnesota \_\_\_\_\_
- h. The shelves of a grocery store \_\_\_\_\_
- i. A machine in an auto plant \_\_\_\_\_
- j. A person who creates a new website and uses it to start a successful business \_\_\_\_\_
- k. A carpenter working for a construction company that is building a house \_\_\_\_\_

5. Following is a production possibilities table for two products, corn and cars. The table is constructed using the usual assumptions. Corn is measured in units of 100,000 bushels and cars in units of 100,000.

Combination	Corn	Cars
A	0	7
B	7	6
C	13	5
D	18	4
E	22	3
F	25	2
G	27	1
H	28	0

a. Follow the general rules for making graphs (see the appendix to Chapter 1); plot the data from the table on the graph below to obtain a production possibilities curve. Place corn on the vertical axis and cars on the horizontal axis.



b. Fill in the following table showing the opportunity cost per unit of producing the 1st through the 7th car unit in terms of corn units.

Cars	Cost of production
1st	_____
2nd	_____
3rd	_____
4th	_____
5th	_____
6th	_____
7th	_____

c. What is the *marginal* opportunity cost of the 3rd car unit in terms of units of corn? \_\_\_\_\_  
d. What is the *total* opportunity cost of producing 6 car units in terms of units of corn? \_\_\_\_\_

■ SHORT ANSWER AND ESSAY QUESTIONS

1. What are the three interrelated features of the economic perspective?
2. What is the economic meaning of the statement "there is no such thing as a free lunch"?
3. What are the differences and similarities among the terms *hypothesis*, *theory*, *principle*, *law*, and *model*?
4. Why do economists use the "other things equal" assumption?
5. Why are economic principles necessarily generalized and abstract?
6. Explain the difference between microeconomics and macroeconomics.

7. What are some current examples of positive economic statements and normative economic statements?
8. Explain what the term "economizing problem" means for an individual and for society.
9. What is a budget line for an individual? How can it be used to illustrate trade-offs and opportunity costs?
10. What are the four economic resources? How is each resource defined?
11. What four assumptions are made in drawing a production possibilities curve or schedule?
12. What is the law of increasing opportunity costs? Why do opportunity costs increase?
13. What determines the optimal product mix for society's production possibilities?
14. How can unemployment be illustrated with the production possibilities curve?
15. What will be the effect of increasing resource supplies on production possibilities?
16. Describe how technological advances will affect the production possibilities curve.
17. Explain the trade-off between goods for the present and goods for the future and the effect of this trade-off on economic growth.
18. What qualification does international specialization and trade make for the interpretation of production possibilities?
19. Explain how the production possibilities curve can be used to explain the economics of war.
20. Explain each of the five pitfalls to sound economic reasoning.

### ANSWERS

#### Chapter 1 Limits, Alternatives, and Choices

##### FILL-IN QUESTIONS

1. scarcity, cost, alternative
2. purposeful, marginal
3. scientific, theories, principles, laws, models
4. generalizations, do not, other-things-equal (or *ceteris paribus*)
5. microeconomics, macroeconomics
6. aggregate
7. positive, normative, normative
8. unlimited, limited
9. buy, a budget
10. attainable, unattainable
11. right, left
12. a. land or natural resources; b. labor; c. capital; d. entrepreneurial ability

13. a. there is full employment and optimal allocation; b. the available supplies of the factors of production are fixed; c. technology does not change during the course of the analysis; d. the economy produces only two products (any order for a-d)
14. consumer, capital, cost
15. concave, are not
16. equal to
17. a. fewer, more; b. unemployed, underemployed; c. more, more; d. economic growth
18. outward, increase, advance
19. consumer, capital, greater
20. more, increases, advance

##### TRUE-FALSE QUESTIONS

- |               |                   |                  |
|---------------|-------------------|------------------|
| 1. T, p. 4    | 10. F, p. 7       | 19. T, p. 13     |
| 2. T, p. 4    | 11. T, pp. 7, 10  | 20. T, pp. 12-13 |
| 3. T, pp. 4-5 | 12. T, pp. 8-9    | 21. F, p. 13     |
| 4. T, pp. 5-6 | 13. F, p. 9       | 22. T, p. 13     |
| 5. T, p. 6    | 14. T, p. 10      | 23. T, p. 15     |
| 6. T, p. 6    | 15. T, pp. 10-11  | 24. T, pp. 17-18 |
| 7. F, p. 6    | 16. F, p. 10      | 25. T, p. 18     |
| 8. F, pp. 6-7 | 17. T, pp. 11, 13 |                  |
| 9. T, p. 7    | 18. T, pp. 12-13  |                  |

##### MULTIPLE-CHOICE QUESTIONS

- |               |                  |                  |
|---------------|------------------|------------------|
| 1. d, p. 4    | 10. b, p. 8      | 19. a, pp. 13-14 |
| 2. c, p. 4    | 11. a, pp. 8-9   | 20. c, pp. 14-15 |
| 3. d, p. 4    | 12. b, p. 10     | 21. d, pp. 13-14 |
| 4. c, p. 5    | 13. d, pp. 10-11 | 22. d, pp. 15-16 |
| 5. b, pp. 5-6 | 14. c, p. 11     | 23. b, p. 15     |
| 6. c, p. 6    | 15. d, p. 11     | 24. c, pp. 15-16 |
| 7. b, p. 6-7  | 16. b, pp. 11-12 | 25. c, pp. 16-17 |
| 8. b, p. 7    | 17. c, p. 15     |                  |
| 9. c, p. 7    | 18. b, p. 13     |                  |

##### PROBLEMS

1. a. 3; b. 4; c. 1; d. 2; e. 6; f. 5
2. An increase in the demand for an economic good will cause the price of that good to rise.
3. a. N; b. P; c. N; d. P; e. N; f. N
4. a. LD; b. C; c. LD; d. C; e. EA; f. LD; g. C; h. C; i. C; j. EA; k. LR
5. b. 1, 2, 3, 4, 5, 6, 7 units of corn; c. 3; d. 21

##### SHORT ANSWER AND ESSAY QUESTIONS

- |            |               |               |
|------------|---------------|---------------|
| 1. pp. 4-5 | 8. pp. 7, 10  | 15. pp. 15-16 |
| 2. p. 4    | 9. pp. 8-10   | 16. p. 16     |
| 3. pp. 5-6 | 10. pp. 10-11 | 17. pp. 17-18 |
| 4. p. 6    | 11. p. 11     | 18. p. 18     |
| 5. p. 6    | 12. pp. 12-13 | 19. p. 14     |
| 6. pp. 6-7 | 13. p. 13     | 20. pp. 16-17 |
| 7. p. 7    | 14. pp. 14-15 |               |

the two sets of points in the two-variable graph, with  $x$  on the horizontal axis and  $y$  on the vertical axis, would be 2. T F

20. When the value of  $x$  is 2, a value of 10 for  $y$  would be calculated from a linear equation of  $y = -2 + 6x$ . T F

### ■ MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

- If an increase in one variable is associated with a decrease in another variable, then we can conclude that the variables are
  - nonlinear
  - directly related
  - inversely related
  - positively related
- The ratio of the vertical change to the horizontal change between two points of a straight line is the
  - slope
  - vertical intercept
  - horizontal intercept
  - point of tangency
- There are two sets of  $x, y$  points on a straight line in a two-variable graph, with  $y$  on the vertical axis and  $x$  on the horizontal axis. If one set of points was  $(0, 5)$  and the other set  $(5, 20)$ , the linear equation for the line would be
  - $y = 5x$
  - $y = 5 + 3x$
  - $y = 5 + 15x$
  - $y = 5 + .33x$
- In a two-variable graph of data on the price and quantity of a product, economists place
  - price on the horizontal axis because it is the independent variable and quantity on the vertical axis because it is the dependent variable
  - price on the vertical axis because it is the dependent variable, and quantity on the horizontal axis because it is the independent variable
  - price on the vertical axis even though it is the independent variable and quantity on the horizontal axis even though it is the dependent variable
  - price on the horizontal axis even though it is the dependent variable and quantity on the vertical axis even though it is the independent variable
- In a two-dimensional graph of the relationship between two economic variables, an assumption is usually made that
  - both variables are linear
  - both variables are nonlinear
  - other variables are held constant
  - other variables are permitted to change
- If the slope of a straight line is zero, then the straight line is
  - vertical
  - horizontal

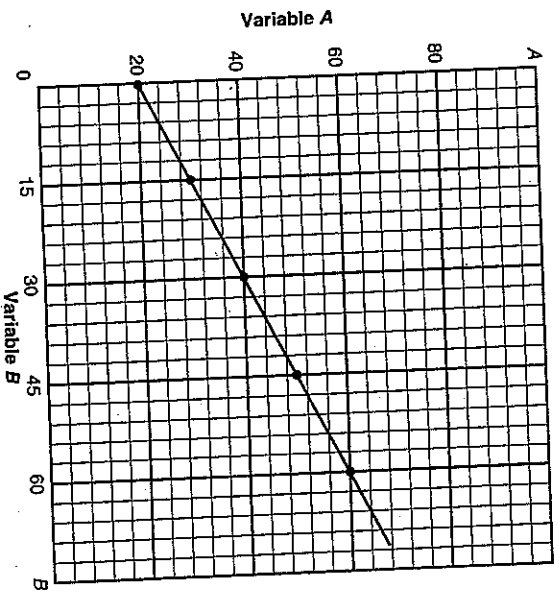
- upward sloping
- downward sloping

Questions 7, 8, 9, and 10 are based on the following four data sets. In each set, the independent variable is in the left column and the dependent variable is in the right column.

	(1)	(2)	(3)	(4)
A	B	C	D	E
0	1	0	12	4
3	2	5	8	6
6	3	10	4	8
9	4	15	0	10
				20
				3
				2
				1
				4
				0
				4
				3
				2
				1

- There is an inverse relationship between the independent and dependent variables in data sets
  - 1 and 4
  - 2 and 3
  - 1 and 3
  - 2 and 4
- The vertical intercept is 4 in data set
  - 1
  - 2
  - 3
  - 4
- The linear equation for data set 1 is
  - $B = 3A$
  - $B = 1 + 3A$
  - $B = 1 + .33A$
  - $A = 1 + .33B$
- The linear equation for data set 2 is
  - $C = 12 - 1.25D$
  - $D = 12 + 1.25C$
  - $D = 12 - .80C$
  - $C = 12 - .80D$

Answer Questions 11, 12, 13, and 14 on the basis of the following diagram.



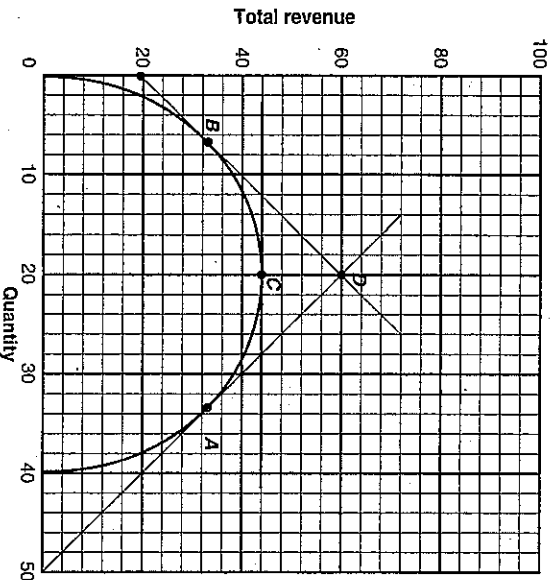
11. The variables **A** and **B** are  
 (a) positively related  
 (b) negatively related  
 (c) indirectly related  
 (d) nonlinear

12. The slope of the line is  
 (a) .33  
 (b) .67  
 (c) 1.50  
 (d) 3.00

13. The vertical intercept is  
 (a) 80  
 (b) 60  
 (c) 40  
 (d) 20

14. The linear equation for the slope of the line is  
 (a)  $A = 20 + .33B$   
 (b)  $B = 20 + .33A$   
 (c)  $A = 20 + .67B$   
 (d)  $B = 20 + .67A$

Answer Questions 15, 16, and 17 on the basis of the following diagram.



15. The slope of the line tangent to the curve at point **A** is  
 (a) 2  
 (b) -2  
 (c) -1.5  
 (d) -0.5
16. The slope of the line tangent to the curve at point **B** is  
 (a) -2  
 (b) 2  
 (c) 3  
 (d) 0.5

17. The slope of the line tangent to the curve at point **C** is  
 (a) -1  
 (b) 1  
 (c) 0  
 (d) undefined

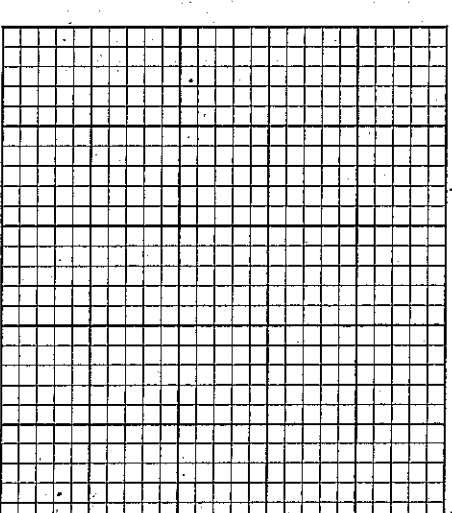
18. Assume that the relationship between concert ticket prices and attendance is expressed in the equation  $P = 25 - 1.25Q$ , where **P** equals ticket price and **Q** equals concert attendance in thousands of people. On the basis of this equation, it can be said that  
 (a) more people will attend the concert when the price is high compared to when the price is low  
 (b) if 12,000 people attended the concert, then the ticket price was \$10  
 (c) if 18,000 people attend the concert, then entry into the concert was free  
 (d) an increase in ticket price by \$5 reduces concert attendance by 1000 people

19. If you know that the equation relating consumption (**C**) to income (**Y**) is  $C = \$7,500 + .2Y$ , then  
 (a) consumption is inversely related to income  
 (b) consumption is the independent variable and income is the dependent variable  
 (c) if income is \$15,000, then consumption is \$10,500  
 (d) if consumption is \$30,000, then income is \$10,000
20. If the dependent variable changes by 22 units when the independent variable changes by 12 units, then the slope of the line is  
 (a) 0.56  
 (b) 1.83  
 (c) 2.00  
 (d) 3.27

PROBLEMS

1. Following are three tables for making graphs. On the graphs, plot the economic relationships contained in each table. Be sure to label each axis of the graph and indicate the unit measurement and scale used on each axis.

- a. Use the table at the top of the next page to graph national income on the horizontal axis and consumption expenditures on the vertical axis in the graph below; connect the seven points and label the curve "Consumption." The relationship between income and consumption is (a direct, an inverse) \_\_\_\_\_ one and the consumption curve is (an up-, a down-) \_\_\_\_\_ sloping curve.



## ANSWERS

## Appendix to Chapter 1 Graphs and Their Meaning

## FILL-IN QUESTIONS

- graph, a horizontal, vertical
- independent, dependent, dependent, independent
- scales, ranges
- an inverse, direct, direct, inverse
- independent, dependent
- held constant; *ceteris paribus*
- vertical, horizontal
- positive, negative
- units of measurement
- marginal
- vertical, horizontal
- intercept
- a. intercept, slope; b. dependent, independent; c. 22, 30, 14
- straight line, nonlinear curve
- tangent

## TRUE-FALSE QUESTIONS

- |                 |                  |                  |
|-----------------|------------------|------------------|
| 1. F, p. 22     | 8. F, p. 24      | 15. T, p. 25     |
| 2. F, p. 23     | 9. T, p. 24      | 16. T, p. 24     |
| 3. T, p. 23     | 10. T, pp. 24-25 | 17. F, p. 23     |
| 4. F, p. 23     | 11. F, pp. 24-25 | 18. T, pp. 25-26 |
| 5. F, pp. 23-24 | 12. T, pp. 24-25 | 19. F, p. 25     |
| 6. T, p. 24     | 13. F, p. 25     | 20. T, p. 25     |
| 7. T, p. 24     | 14. F, pp. 25-26 |                  |

## MULTIPLE-CHOICE QUESTIONS

- |                 |              |                  |
|-----------------|--------------|------------------|
| 1. c, p. 23     | 8. d, p. 25  | 15. b, pp. 25-26 |
| 2. a, p. 24     | 9. c, p. 25  | 16. b, pp. 25-26 |
| 3. b, p. 25     | 10. c, p. 25 | 17. c, pp. 25-26 |
| 4. c, p. 23     | 11. a, p. 23 | 18. b, p. 25     |
| 5. c, pp. 23-24 | 12. b, p. 24 | 19. c, p. 25     |
| 6. b, pp. 24-25 | 13. d, p. 25 | 20. b, p. 24     |
| 7. d, p. 23     | 14. c, p. 25 |                  |

## PROBLEMS

- a. a direct, an up; b. an inverse, a down; c. are, is not, coincidental
- a. table below; b. independent, dependent; c.  $P = 4.00 - .25Q$

Point	Price	Quantity
A	\$4.00	0
B	3.50	2
C	3.00	4
D	2.50	6
E	2.00	8
F	1.50	10
G	1.00	12
H	.50	14
I	.00	16

- a. (1)  $B = 10 + 2A$ ; (2)  $D = 100 - 2.5C$ ; (3)  $F = 20 + .4E$   
b. (1) positive; (2) inverse; (3) positive
- a. a. 5; b. 0; c. -10

## SHORT ANSWER AND ESSAY QUESTIONS

- |              |              |               |
|--------------|--------------|---------------|
| 1. p. 22     | 6. p. 24     | 11. p. 24     |
| 2. pp. 22-23 | 7. p. 23     | 12. p. 24     |
| 3. p. 24     | 8. p. 23     | 13. pp. 24-25 |
| 4. p. 25     | 9. pp. 23-24 | 14. p. 25     |
| 5. p. 25     | 10. p. 23    | 15. pp. 25-26 |

■ MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

- The private ownership of property resources and use of markets and prices to direct and coordinate economic activity is characteristic of
  - socialism
  - communism
  - a market economy
  - a command economy
- Which is one of the main characteristics of the market system?
  - central economic planning
  - limits on freedom of choice
  - the right to own private property
  - an expanded role for government in the economy
- In the market system, freedom of enterprise means that
  - government is free to direct the actions of businesses
  - businesses are free to produce products that consumers want
  - consumers are free to buy goods and services that they want
  - resources are distributed freely to businesses that want them
- The maximization of profit tends to be the driving force in the economic decision making of
  - workers
  - consumers
  - legislators
  - entrepreneurs
- How do consumers typically express self-interest?
  - by minimizing their economic losses
  - by maximizing their economic profits
  - by seeking the lowest price for a product
  - by seeking jobs with the highest wages and benefits
- Which is a characteristic of competition as economists see it?
  - a few sellers of all products
  - the widespread diffusion of economic power
  - a small number of buyers in product markets
  - the relatively difficult entry into and exit from industries by producers
- To decide how to use its scarce resources to satisfy economic wants, a market economy primarily relies on
  - prices
  - planning
  - monopoly power
  - production targets
- The market system is a method of
  - making economic decisions by central planning
  - communicating and coordinating economic decisions
  - promoting specialization, but not division of labor
  - allocating money, but not economic profits or losses
- When workers specialize in various tasks to produce a commodity, the situation is referred to as
  - division of labor
  - freedom of choice
  - capital accumulation
  - a coincidence of wants
- In what way does human specialization contribute to an economy's output?
  - It is a process of creative destruction.
  - It serves as consumer sovereignty.
  - It acts like an "invisible hand."
  - It fosters learning by doing.
- Which is a prerequisite of specialization?
  - market restraints on freedom
  - having a convenient means of exchanging goods
  - letting government create a plan for the economy
  - deciding who will get the goods and services in an economy
- In the market system, the role of government is best described as
  - limited
  - extensive
  - significant
  - nonexistent
- Which would necessarily result, sooner or later, from a decrease in consumer demand for a product?
  - a decrease in the profits of firms in the industry
  - an increase in the output of the industry
  - an increase in the supply of the product
  - an increase in the prices of resources employed by the firms in the industry
- The demand for resources is
  - increased when the price of resources falls
  - most influenced by the size of government in a capitalist economy
  - derived from the demand for the products made with the resources
  - decreased when the product that the resources produce becomes popular

Answer Questions 15, 16, and 17 on the basis of the following information.

Suppose 50 units of product X can be produced by employing just labor and capital according to the four techniques (A, B, C, and D) shown below. Assume the prices of labor and capital are \$5 and \$4, respectively.

	A	B	C	D
Labor	1	2	3	4
Capital	5	3	2	1

- Which technique is economically most efficient in producing product X?
  - A
  - B
  - C
  - D

16. If the price of product X is \$1, the firm will realize
- (a) an economic profit of \$28
  - (b) an economic profit of \$27
  - (c) an economic profit of \$26
  - (d) an economic profit of \$25
17. Now assume that the price of labor falls to \$3 and the price of capital rises to \$5. Which technique is economically most efficient in producing product X?
- (a) A
  - (b) B
  - (c) C
  - (d) D

18. Which is the primary factor determining the share of the total output of the economy received by a household?
- (a) the tastes of the household
  - (b) the medium of exchange used by the household
  - (c) the prices at which the household sells its resources
  - (d) ethical considerations in the operation of a market economy
19. If an increase in the demand for a product and a rise in its price cause an increase in the quantity supplied, price is successfully performing its
- (a) guiding function
  - (b) circular flow role
  - (c) division-of-labor role
  - (d) medium-of-exchange function

20. In the market system, if one firm introduces a new and better method of production that enhances the firm's economic profits, other firms will be forced to adopt the new method to
- (a) increase circular flow
  - (b) follow rules for capital accumulation
  - (c) avoid economic losses or bankruptcy
  - (d) specialize and divide the labor in an efficient way
21. The advent of personal computers and word processing software that eliminated the market for electric typewriters would be an example of
- (a) specialization
  - (b) derived demand
  - (c) the "invisible hand"
  - (d) creative destruction

22. The chief economic virtue of the competitive market system is that it
- (a) allows extensive personal freedom
  - (b) promotes the efficient use of resources
  - (c) provides an equitable distribution of income
  - (d) eliminates the need for decision making
23. In the system of central planning, the outputs of some industries became the inputs for other industries, but a failure of one industry to meet its production target would cause
- (a) widespread unemployment
  - (b) inflation in wholesale and retail prices
  - (c) profit declines and potential bankruptcy of firms
  - (d) a chain reaction of production problems and bottlenecks

24. The two kinds of markets found in the circular flow model are
- (a) real and money markets
  - (b) real and socialist markets
  - (c) money and command markets
  - (d) product and resource markets

25. In the circular flow model, businesses
- (a) buy products and resources
  - (b) sell products and resources
  - (c) buy products and sell resources
  - (d) sell products and buy resources

■ PROBLEMS

1. Use the appropriate number to match the terms with the phrases below.
 

1. invisible hand	4. consumer sovereignty
2. coincidence of wants	5. creative destruction
3. division of labor	6. specialization
  - a. Using the resources of an individual, a firm, a region, or a nation to produce one (or a few) goods and services.
  - b. The tendency of firms and resource suppliers seeking to further their own self-interest while also promoting the interests of society in a market economy.
  - c. The situation where new products and production methods eliminate the market position of firms doing business using existing products or older production methods.
  - d. Splitting the work required to produce a product into a number of different tasks that are performed by different workers.
  - e. A situation in which the product the first trader wants to sell is the same as the product the second trader wants to buy, and the product the second trader wants to sell is the same as the product the first trader wants to buy.
  - f. Determination by consumers of the types and quantities of goods and services that will be produced in a market economy.
2. Assume that a firm can produce product A, product B, or product C with the resources it currently employs. These resources cost the firm a total of \$50 per week. Assume, for the purposes of the problem, that the firm's employment of resources cannot be changed. Their market prices, and the quantities of A, B, and C these resources will produce per week are given in the table below. Compute the firm's profit when it produces A, B, or C, and enter these profits in the table.

Product	Market Price	Output	Economic Profit
A	\$7.00	8	\$ _____
B	4.50	10	_____
C	.25	240	_____

- a. Which product will the firm produce? \_\_\_\_\_  
 b. If the price of A rose to \$8, the firm would \_\_\_\_\_

(Hint: You will have to recompute the firm's profit from the production of A.)

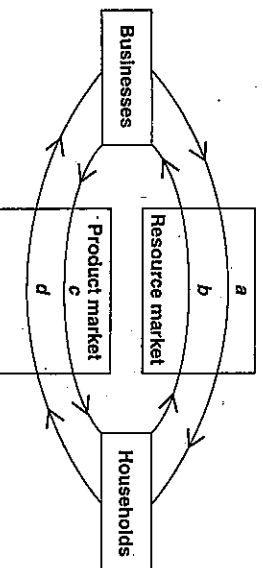
- c. If the firm were producing A and selling it at a price of \$8, what would tend to happen to the number of firms producing A?

3. Suppose that a firm can produce 100 units of product X by combining labor, land, capital, and entrepreneurial ability using three different methods. If it can hire labor at \$2 per unit, land at \$3 per unit, capital at \$5 per unit, and entrepreneurship at \$10 per unit, and if the amounts of the resources required by the three methods of producing 100 units of product X are as indicated in the table, answer the following questions.

Resource	Method 1	Method 2	Method 3
Labor	8	13	10
Land	4	3	3
Capital	4	2	4
Entrepreneurship	1	1	1

- a. Which method is the least expensive way of producing 100 units of X? \_\_\_\_\_  
 b. If X sells for 70 cents per unit, what is the economic profit of the firm? \$ \_\_\_\_\_  
 c. If the price of labor should rise from \$2 to \$3 per unit and if the price of X is 70 cents,  
 (1) the firm's use of \_\_\_\_\_  
 labor would change from \_\_\_\_\_ to \_\_\_\_\_  
 land would change from \_\_\_\_\_ to \_\_\_\_\_  
 capital would change from \_\_\_\_\_ to \_\_\_\_\_  
 entrepreneurship would not change  
 (2) The firm's economic profit would change from \$ \_\_\_\_\_ to \$ \_\_\_\_\_

4. In the circular flow diagram below, the upper pair of flows (*a* and *b*) represents the resource market and the lower pair (*c* and *d*) the product market.



Supply labels or explanations for each of the four flows:

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

#### ■ SHORT ANSWER AND ESSAY QUESTIONS

- The command system and the market system differ in two important ways. Compare and contrast the two economic systems.
- Explain the major characteristics—institutions and assumptions—embodied in a market system.
- What do each of the following seek if they pursue their own self-interest: consumers, resource owners, and business firms?
- Explain what economists mean by competition. For a market to be competitive, why is it important that there be buyers and sellers and easy entry and exit?
- How does an economy benefit from specialization and the division of labor?
- Give an example of how specialization can benefit two separate and diversely endowed geographic regions.
- What is money? What important function does it perform? Explain how money performs this function and how it overcomes the disadvantages associated with barter.
- In what way do the desires of entrepreneurs to obtain economic profits and avoid losses make consumer sovereignty effective?
- Why is the ability of firms to enter industries that are prosperous important to the effective functioning of competition?
- Explain in detail how an increase in the consumer demand for a product will result in more of the product being produced and more resources being allocated to its production.
- Describe the production factor for businesses that determines what combinations of resources and technologies will be used to produce goods and services.
- Who will get the output from a market economy? Explain.
- How can the market system adapt to change? How is it done?
- How do prices communicate information and guide and direct production in a market economy?
- Explain how the market system provides a strong incentive for technological advance and creative destruction.
- Who “votes” for the production of capital goods, why do they “vote” for capital goods production, and where do they obtain the dollars needed to cast these “votes”?

17. "An invisible hand operates to identify private and public interests." What are private interests and what is the public interest? What is it that leads the economy to operate as if it were directed by an invisible hand?
18. Describe three virtues of the market system.
19. Explain the two major economic problems with command economies and why market economies avoid such problems.
20. In the circular flow model, what are the two markets? What roles do households play and what roles do businesses play in each market?

**ANSWERS**

**Chapter 2 The Market System and the Circular Flow**

**FILL-IN QUESTIONS**

1. an economic system
2. publicly, is central planning
3. privately, are markets and prices
4. property, enterprise, choice
5. competition, are not
6. a. independently acting buyers and sellers operating in markets; b. freedom of buyers and sellers to enter or leave these markets
7. markets, prices
8. exchange, wants
9. a limited
10. a. What goods and services will be produced? b. How will the goods and services be produced? c. Who will get the goods and services? d. How will the system accommodate change? e. How will the system promote progress?
11. buy, sovereign, restrain
12. least, technology, prices
13. incomes, prices
14. preferences, resources, guiding
15. profit, loss
16. capital, consumer, capital
17. unity, an invisible, efficient, incentives, freedom
18. decentralized, centralized, efficient, inefficient, more inadequate
19. ineffective, entrepreneurship, lagged
20. a. product, resource; b. real, money

**TRUE-FALSE QUESTIONS**

- |                 |                  |                      |
|-----------------|------------------|----------------------|
| 1. F, p. 30     | 10. T, p. 33     | 19. T, p. 37         |
| 2. F, p. 30     | 11. T, pp. 33-34 | 20. T, p. 37         |
| 3. T, p. 30     | 12. F, p. 33     | 21. T, p. 38         |
| 4. T, pp. 30-31 | 13. T, p. 33     | 22. T, p. 38         |
| 5. T, p. 31     | 14. F, p. 34     | 23. T, pp. 38-39     |
| 6. F, pp. 31-32 | 15. T, pp. 34-35 | 24. F, pp. 38-39     |
| 7. T, p. 32     | 16. T, p. 35     | 25. T, pp. 39-40, 42 |
| 8. T, p. 32     | 17. T, pp. 35-36 |                      |
| 9. T, p. 33     | 18. F, p. 36     |                      |

**MULTIPLE-CHOICE QUESTIONS**

- |                 |                  |                      |
|-----------------|------------------|----------------------|
| 1. c, pp. 30-32 | 10. d, p. 33     | 19. a, pp. 36-37     |
| 2. c, pp. 30-31 | 11. b, p. 33     | 20. c, p. 37         |
| 3. b, p. 31     | 12. a, p. 34     | 21. d, p. 37         |
| 4. d, pp. 31-32 | 13. a, pp. 34-35 | 22. b, p. 38         |
| 5. c, pp. 31-32 | 14. c, pp. 35-36 | 23. d, p. 38         |
| 6. b, p. 32     | 15. b, pp. 35-36 | 24. d, pp. 39-40, 42 |
| 7. a, p. 32     | 16. a, pp. 35-36 | 25. d, pp. 39-40, 42 |
| 8. b, p. 32     | 17. d, pp. 35-36 |                      |
| 9. a, p. 33     | 18. c, p. 33     |                      |

**PROBLEMS**

1. a, 6; b, 1; c, 5; d, 3; e, 2; f, 4
2. \$6; -\$5, \$10; a, C; b. produce A and have an economic profit of \$14; c. it would increase
3. a. method 2; b. 15; c. (1) 13, 8; 3, 4; 2, 4; (2) 15, 4
4. a. money income payments (wages, rent, interest, and profit); b. services or resources (land, labor, capital, and entrepreneurial ability); c. goods and services; d. expenditures for goods and services

**SHORT ANSWER AND ESSAY QUESTIONS**

- |              |               |                   |
|--------------|---------------|-------------------|
| 1. p. 30     | 8. pp. 34-35  | 15. p. 37         |
| 2. pp. 30-34 | 9. pp. 34-35  | 16. p. 37         |
| 3. pp. 31-32 | 10. pp. 34-35 | 17. p. 38         |
| 4. p. 32     | 11. pp. 35-36 | 18. p. 38         |
| 5. p. 33     | 12. p. 36     | 19. pp. 38-39     |
| 6. p. 33     | 13. pp. 36-37 | 20. pp. 39-40, 42 |
| 7. pp. 33-34 | 14. p. 37     |                   |

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. A price ceiling set by government below the competitive market price of a product will result in a surplus.  
T F

■ MULTIPLE-CHOICE QUESTIONS

Circle the letter that corresponds to the best answer.

1. 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  
(a) supply  
(b) demand  
(c) quantity supplied  
(d) quantity demanded

2. The reason for the law of demand can best be explained in terms of  
(a) supply  
(b) complementary goods  
(c) the rationing function of prices  
(d) diminishing marginal utility

3. 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?  
(a) Price will increase; quantity will decrease.  
(b) Price will decrease; quantity will increase.  
(c) Price will decrease; quantity will decrease.  
(d) Price will increase; quantity will increase.

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

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

5. Which change will decrease the demand for a product?  
(a) a favorable change in consumer tastes  
(b) an increase in the price of a substitute good

(c) a decrease in the price of a complementary good  
(d) a decrease in the number of buyers

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

- (a) normal  
(b) inferior  
(c) a substitute  
(d) a complement

7. Which of the following could cause a decrease in consumer demand for product X?  
(a) a decrease in consumer income  
(b) an increase in the prices of goods that are good substitutes for product X  
(c) an increase in the price that consumers expect will prevail for product X in the future  
(d) a decrease in the supply of product X

8. If two goods are substitutes for each other, an increase in the price of one will necessarily  
(a) decrease the demand for the other  
(b) increase the demand for the other  
(c) decrease the quantity demanded of the other  
(d) increase the quantity demanded of the other

9. If two products, A and B, are complements, then  
(a) an increase in the price of A will decrease the demand for B  
(b) an increase in the price of A will increase the demand for B  
(c) an increase in the price of A will have no significant effect on the price of B  
(d) a decrease in the price of A will decrease the demand for B

10. If two products, X and Y, are independent goods, then  
(a) an increase in the price of X will significantly increase the demand for Y  
(b) an increase in the price of Y will significantly increase the demand for X  
(c) an increase in the price of Y will have no significant effect on the demand for X  
(d) a decrease in the price of X will significantly increase the demand for Y

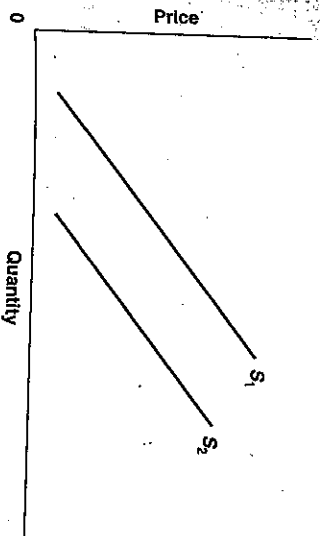
11. The law of supply states that, other things being constant, as price increases

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

12. If the supply curve moves from  $S_1$  to  $S_2$  on the graph in the next column, 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



- (c) \$26  
 (d) \$28

18. 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

19. 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

13. 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

20. 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

14. 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

21. 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

15. If the price of a product is below the equilibrium price, the result will be

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

16. Which would be the best example of allocative efficiency? When society devoted resources to the production of

- (a) slide rules instead of handheld calculators  
 (b) horse-drawn carriages instead of automobiles  
 (c) computers with word processors instead of typewriters  
 (d) long-playing records instead of compact discs

Answer Questions 17, 18, and 19 on the basis of the data in 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

17. The equilibrium price in this market is

- (a) \$22  
 (b) \$24

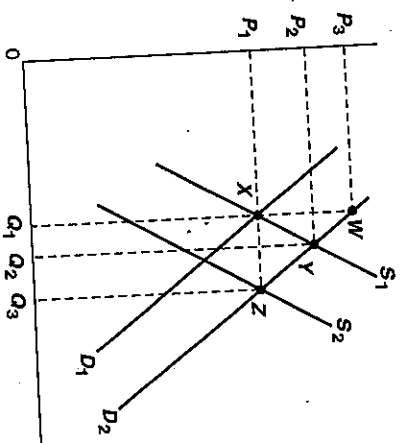
22. An increase in supply and an increase in demand will

- (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

23. 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 24, 25, 26, and 27 based on the following graph showing the market supply and demand for a product.



24. 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
- W
  - X
  - Y
  - Z
25. 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  $Q_1$ ?
- an increase in product price
  - an increase in demand
  - an increase in supply
  - a decrease in quantity
26. What would cause a shift in the equilibrium price and quantity from point Z to point X?
- a decrease in production costs and more favorable consumer tastes for the product
  - an increase in the number of suppliers and an increase in consumer incomes
  - an increase in production costs and a decrease in consumer incomes
  - an improvement in production technology and a decrease in the price of a substitute good
27. 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
- $P_1$  and  $Q_1$
  - $P_2$  and  $Q_2$
  - $P_1$  and  $Q_3$
  - $P_3$  and  $Q_1$
28. The demand curve and its inverse relationship between price and quantity demanded is based on the assumption of
- other things equal
  - complementary goods
  - increasing marginal utility
  - changing consumer expectations

Questions 29 and 30 relate to the following table that shows a hypothetical supply and demand schedule for a product.

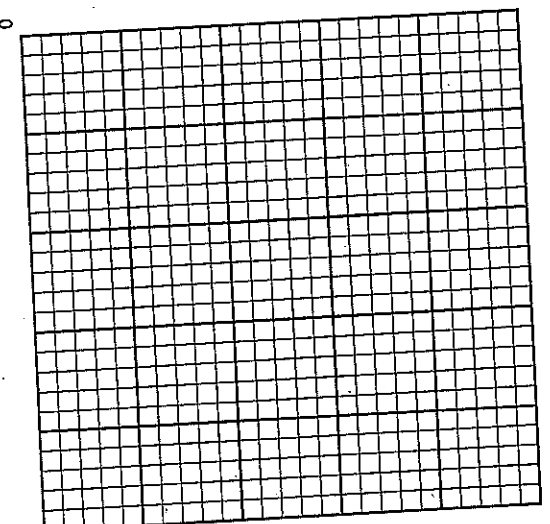
Quantity demanded (pounds)	Price (per pound)	Quantity supplied (pounds)
200	\$4.40	800
250	4.20	700
300	4.00	600
350	3.80	500
400	3.60	400
450	3.40	300
500	3.20	200

29. A shortage of 150 pounds of the product will occur if a government-set price is established at
- \$3.20
  - \$3.40
  - \$3.80
  - \$4.00
30. If a price floor set by the government is established at \$4.20, there will be a
- surplus of 300 pounds
  - shortage of 300 pounds
  - surplus of 450 pounds
  - shortage of 450 pounds

PROBLEMS

1. Using the demand schedule below, 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 demanded 1000 bushels of soybeans	
	Ellie	Sam
\$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.

Price	Demand for A (per week)		Demand for B (per week)		
	(2) Quantity demanded	(3) Quantity demanded	(4) Price demanded	(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	1600	1500	1700
2.30	1650	1550	1750
2.20	1750	1650	1850
2.10	1900	1800	2000
2.00	2100	2000	2200
1.90	2350	2250	2450
1.80	2650	2550	2750

- 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. The existing demand and supply schedules are given in columns 1, 2, and 3 of the following table.

(1) Price demanded	Demand and Supply Schedules		New Demand and Supply Schedules		
	(2) Quantity demanded	(3) Quantity supplied	(4) Price demanded	(5) Quantity demanded	(6) Quantity supplied
\$5.00	10	50	\$5.00		
4.00	20	40	4.00		
3.00	30	30	3.00		
2.00	40	20	2.00		
1.00	50	10	1.00		

- a. Now the demand *increases* by 10 units at each price and supply *decreases* by 10 units. Enter the new amounts for quantity demanded and quantity supplied in columns 5 and 6.
- b. What was the old equilibrium price? \_\_\_\_\_  
What will be the new equilibrium price? \_\_\_\_\_
- c. What was the old equilibrium quantity? \_\_\_\_\_  
What will be the new equilibrium quantity? \_\_\_\_\_
7. 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.

8. Each of the following events would tend to increase or decrease either the demand for or the supply of electronic 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 electronic games is a competitive one.
- a. It becomes known by consumers that there is going to be a major sale on these games one month from now. \_\_\_\_\_
- b. The workers in the electronic games industry receive a \$3 an hour wage increase. \_\_\_\_\_
- c. It is announced by a respected research institute that children who play electronic games also

improve their grades in school. \_\_\_\_\_

- d. Because of an increase in productivity, the amount of labor necessary to produce a game decreases. \_\_\_\_\_
- e. The consumers who play these games believe that a shortage of the games is developing in the economy. \_\_\_\_\_
- f. The federal government imposes a \$5 tax per game on the manufacturers of the electronic games. \_\_\_\_\_

#### ■ SHORT ANSWER AND ESSAY QUESTIONS

- Define demand and the law of demand.
- 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.
- 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.
- What is the difference between individual demand and market demand? What is the relationship between these two types of demand?
- Explain the difference between an increase in demand and an increase in the quantity demanded.
- 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.
- How are inferior and normal (or superior) goods defined? What is the relationship between these goods and changes in income?
- 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?
- 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 for 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.
- Compare and contrast the supply schedule with the demand schedule.
- 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?
- Explain the difference between an increase in supply and an increase in the quantity supplied.

13. 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.
14. 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.
15. 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).
16. 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?
17. Explain why competition implies both productive efficiency and allocative efficiency.
18. 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."
19. What are the consequences of a price ceiling for a product if it is set below the equilibrium price? Illustrate your answer with a graph.
20. What are the economic problems with price floors? How have they been used by government?

16. a. +, +; b. -, +; c. -, -; d. +, -; e. ?, +; f. +, ?; g. ?, -; h. -, ?
17. rationing, clearing
18. productive, allocative
19. maximum, minimum
20. shortage, surplus

## TRUE-FALSE QUESTIONS

- |                 |                  |                  |
|-----------------|------------------|------------------|
| 1. T, p. 46     | 10. T, pp. 49-50 | 19. T, pp. 54-55 |
| 2. F, p. 46     | 11. T, p. 50     | 20. F, pp. 55-56 |
| 3. F, p. 47     | 12. F, p. 50     | 21. T, p. 56     |
| 4. T, p. 47     | 13. F, p. 51     | 22. F, pp. 56-57 |
| 5. F, p. 47     | 14. F, p. 51     | 23. F, pp. 57-58 |
| 6. F, pp. 47-48 | 15. T, pp. 52-53 | 24. T, pp. 57-58 |
| 7. F, pp. 46-47 | 16. F, p. 53     | 25. F, p. 59     |
| 8. F, pp. 48-49 | 17. T, p. 53     |                  |
| 9. T, p. 49     | 18. F, pp. 52-54 |                  |

## MULTIPLE-CHOICE QUESTIONS

- |                 |                  |                  |
|-----------------|------------------|------------------|
| 1. b, p. 46     | 11. c, p. 51     | 21. c, pp. 57-58 |
| 2. d, p. 47     | 12. a, pp. 51-53 | 22. d, pp. 57-58 |
| 3. d, pp. 54-56 | 13. a, pp. 52-53 | 23. b, pp. 57-58 |
| 4. b, p. 48     | 14. b, pp. 54-55 | 24. c, pp. 57-58 |
| 5. d, pp. 49-50 | 15. b, pp. 54-55 | 25. c, pp. 57-58 |
| 6. b, pp. 49-50 | 16. c, pp. 56-57 | 26. c, pp. 57-58 |
| 7. a, pp. 49-50 | 17. c, pp. 54-55 | 27. c, pp. 57-58 |
| 8. b, p. 50     | 18. d, pp. 52-55 | 28. a, p. 46     |
| 9. a, p. 50     | 19. d, pp. 54-55 | 29. b, p. 59     |
| 10. c, p. 50    | 20. d, pp. 57-58 | 30. c, pp. 61-62 |

## PROBLEMS

- a graph; b. 6,60; c. 25,000; d. graph; e. surplus, 20,000
- Total: 5, 9, 17, 27, 39
- Each quantity in column 3 is greater than in column 2, and each quantity in column 4 is less than in column 2.
  - a. 30, 4; b. (1) 20, 7; (2) inferior; (3) normal (superior)
  - a. complementary; b. substitute
  - a. column 5 (quantity demanded): 20, 30, 40, 50, 60; column 6 (quantity supplied): 40, 30, 20, 10, 0; b. \$3.00, \$4.00; c. 30, 30
  - a. 45,000; 33,000; 22,500; 13,500; 6,000; 0; b. shortage, 28,500
  - a. decrease demand; decrease price; b. decrease supply, increase price; c. increase demand; increase price; d. increase supply, decrease price; e. increase demand, increase price; f. decrease supply, increase price

## ANSWERS

## Chapter 3 Demand, Supply, and Market Equilibrium

## FILL-IN QUESTIONS

- demanders, suppliers
- an inverse, a direct
- utility
- a. income; b. substitution
- vertical, horizontal
- adding, prices
- substitutes, complements
- a. the tastes or preferences of consumers; b. the number of consumers in the market; c. the money income of consumers; d. the prices of related goods; e. consumer expectations with respect to future prices and income (any order for a-e)
- smaller, less
- demand for, quantity demanded of
- larger, less
- supply, quantity supplied.
- a. the technology of production; b. resource prices; c. taxes and subsidies; d. prices of other goods; e. producer expectations of price; f. the number of sellers in the market (any order for a-f)
- equal to, is not
- below, shortage, rise, above, surplus, fall

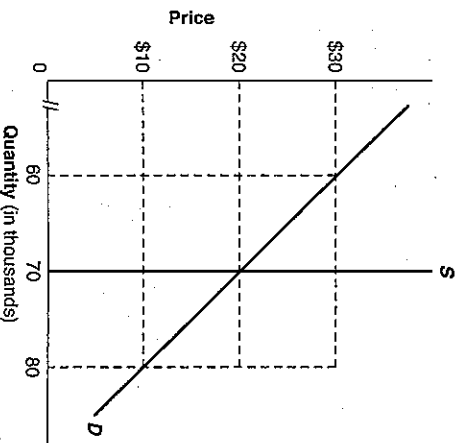
## SHORT ANSWER AND ESSAY QUESTIONS

- |              |                   |               |
|--------------|-------------------|---------------|
| 1. pp. 46-47 | 8. p. 50          | 15. pp. 54-55 |
| 2. p. 47     | 9. pp. 48-49      | 16. pp. 54-56 |
| 3. p. 47     | 10. pp. 46-47, 51 | 17. pp. 56-57 |
| 4. p. 48     | 11. pp. 52-54     | 18. pp. 57-58 |
| 5. p. 51     | 12. pp. 52-54     | 19. pp. 59-61 |
| 6. p. 50     | 13. pp. 57-58     | 20. pp. 61-62 |
| 7. pp. 49-50 | 14. pp. 57-58     |               |

10. If a seller sets a price for a product that turns out to be below the equilibrium price, then there will be a
- (a) shortage of the product
  - (b) surplus of the product
  - (c) price floor for a product
  - (d) a zero price for the product

11. A surplus means that
- (a) demand for a product is greater than the supply
  - (b) supply of the product is greater than the demand
  - (c) quantity demanded is less than the quantity supplied at that price
  - (d) quantity demanded is greater than the quantity supplied at that price

Answer Questions 12, 13, and 14 based on the following graph showing the market supply and demand for a product.



12. Given this market, if a seller pre-sets the price at \$10, then this action results in a
- (a) surplus of 10,000 units
  - (b) surplus of 80,000 units
  - (c) shortage of 10,000 units
  - (d) shortage of 80,000 units
13. Given this market, if a seller pre-sets the price at \$30, then this action results in a
- (a) surplus of 10,000 units
  - (b) surplus of 60,000 units
  - (c) surplus of 70,000 units
  - (d) shortage of 10,000 units
14. What price will eliminate a surplus or shortage in this market
- (a) \$0
  - (b) \$10
  - (c) \$20
  - (d) \$30
15. A market for tickets in which buyers bid for tickets held by initial purchasers rather than the original seller is a
- (a) primary market
  - (b) secondary market
  - (c) pre-set market
  - (d) surplus market

PROBLEMS

1. The existing demand and supply schedules are given in columns 1, 2, and 3 of the following table.

Demand and Supply Schedules		New Demand and Supply Schedules			
(1) Quantity demanded	(2) Quantity supplied	(3) Price	(4) Price	(5) Quantity demanded	(6) Quantity supplied
\$5.00	10	50	\$5.00		
4.00	20	40	4.00		
3.00	30	30	3.00		
2.00	40	20	2.00		
1.00	50	10	1.00		

Now the demand increases by 10 units at each price and supply decreases by 10 units. Enter the new amounts for quantity demanded and quantity supplied in columns 5 and 6.

- a. What was the old equilibrium price? \_\_\_\_\_  
What will be the new equilibrium price? \_\_\_\_\_
  - b. What was the old equilibrium quantity? \_\_\_\_\_  
What will be the new equilibrium quantity? \_\_\_\_\_
2. The demand and supply schedules for a certain product are those given in the following table. Answer the related questions.

Quantity demanded	Price	Quantity supplied
12,000	\$10	18,000
13,000		17,000
14,000		16,000
15,000		15,000
16,000		14,000
17,000		13,000
18,000		12,000

- The equilibrium price of the product is \$ \_\_\_\_\_ and the equilibrium quantity is \_\_\_\_\_.
- a. If a seller established a pre-set price of \$5 on this product, there would be a (shortage, surplus) \_\_\_\_\_ of \_\_\_\_\_ units.
  - b. If a seller established a pre-set price of \$8, there would be a (shortage, surplus) \_\_\_\_\_ of \_\_\_\_\_ units.

SHORT ANSWER AND ESSAY QUESTIONS

- 1. Explain, using a supply and demand graph, how a freeze in a vegetable crop will affect the equilibrium price and quantity.
- 2. In a competitive market, if the supply of a product decreases and demand remains the same, what happens to the quantity demanded?

3. When there are single shifts in the supply or demand curve, you can predict the effects on both equilibrium price and quantity. When there are simultaneous shifts in demand and supply you can make only one prediction of the effects with any certainty. Why?
4. You observe that the equilibrium price has decreased and the equilibrium quantity has increased. What supply and demand conditions would best explain this outcome?
5. If increase in the demand for gasoline outweighs the decrease in the supply of gasoline, what is the most likely effect on the equilibrium price and quantity? Explain and show your answer with a graph.
6. You observe that the equilibrium quantity has increased but the equilibrium price has stayed the same. What supply and demand conditions would best explain this outcome?
7. What are price ceilings and price floors?
8. What are the consequences if a seller sets a price below the actual equilibrium price?
9. Why do secondary markets arise? Give examples of such markets.
10. Explain, using a supply and demand graph, the situation that arises when there are many unsold tickets to a sporting event. Why does this occur?

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### ANSWERS

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#### Appendix to Chapter 3 Additional Examples of Supply and Demand

##### FILL-IN QUESTIONS

1. increases, decreases
2. increases, increases
3. demand for, supply of

4. decreases, increases
5. increases, increases
6. decrease, increase
7. stays the same, increases
8. ceiling, floor
9. shortage, surplus
10. secondary, scalping

##### TRUE-FALSE QUESTIONS

- |                 |                 |                  |
|-----------------|-----------------|------------------|
| 1. T, p. 66     | 5. F, p. 67     | 9. F, p. 69      |
| 2. F, p. 66     | 6. F, pp. 68-69 | 10. T, pp. 69-70 |
| 3. T, pp. 66-67 | 7. T, pp. 68-69 |                  |
| 4. T, p. 67     | 8. T, p. 69     |                  |

##### MULTIPLE-CHOICE QUESTIONS

- |                 |                 |                  |
|-----------------|-----------------|------------------|
| 1. b, p. 66     | 6. d, p. 68     | 11. c, p. 69     |
| 2. b, p. 66     | 7. c, pp. 68-69 | 12. c, pp. 69-70 |
| 3. d, pp. 66-67 | 8. d, pp. 68-69 | 13. a, pp. 69-70 |
| 4. d, p. 67     | 9. b, pp. 69-70 | 14. c, pp. 69-70 |
| 5. b, p. 68     | 10. a, p. 69    | 15. b, p. 69     |

##### PROBLEMS

1. column 5 (quantity demanded): 20, 30, 40, 50, 60; column 6 (quantity supplied): 40, 30, 20, 10, 0; a. \$3.00, \$4.00; b. 30, 30
2. \$7, 15,000; a. shortage, 4,000; b. surplus, 2,000

##### SHORT ANSWER AND ESSAY QUESTIONS

- |              |              |               |
|--------------|--------------|---------------|
| 1. p. 66     | 5. p. 68     | 9. p. 69      |
| 2. pp. 66-67 | 6. pp. 68-69 | 10. pp. 69-70 |
| 3. pp. 67-68 | 7. pp. 69-70 |               |
| 4. pp. 67-68 | 8. p. 69     |               |

11. When the Federal government provides for a monetary system, it is doing so primarily to maintain competition. T F
12. Transfer payments are one means government uses to redistribute income. T F
13. If demand and supply reflected all the benefits and costs of producing a product, there would be efficient resource use. T F
14. When there are external costs, more resources are allocated to the production of the product and more is produced than is efficient. T F
15. One way for government to correct for external costs from a product is to increase its demand. T F
16. When there are external benefits from a product, there will be an overallocation of resources for its production. T F
17. One way for government to correct external benefits from a product is to subsidize consumers of the product. T F
18. Nonexcludability means government provides public goods so as to exclude private businesses from providing them. T F
19. Obtaining the benefits of private goods requires that they be purchased; obtaining benefits from public goods requires only that they be produced. T F
20. Government provides homeland defense services because these services have public benefits and because private producers of such services experience the free-rider problem. T F
21. When the Federal government takes actions to control unemployment or inflation it is performing the allocative function of government. T F
22. Government purchases of goods and services are called nonexhaustive expenditures and government transfer payments are called exhaustive expenditures. T F
23. When a government levies taxes and uses the tax revenue to make transfer payments, it shifts resources from the production of private goods to the production of public goods. T F
24. The chief source of revenue for the Federal government is the corporate income tax. T F
25. Property taxes are the largest percentage of the total revenues of local governments. T F

■ **MULTIPLE-CHOICE QUESTIONS**

Circle the letter that corresponds to the best answer.

1. The functional distribution for the United States shows that the largest part of the nation's earned income is
- (a) wages and salaries
  - (b) proprietors' income
  - (c) corporate profits
  - (d) interest and rents

2. The part of after-tax income which is not consumed is defined as
- (a) saving
  - (b) capital investment
  - (c) wages and salaries
  - (d) nondurable goods expenditure
3. If personal consumption expenditures were 80% of income and personal taxes were 8% of income, then personal savings would be
- (a) 8% of income
  - (b) 10% of income
  - (c) 12% of income
  - (d) 88% of income
4. Consumer products that have expected lives of three years or more are
- (a) durable goods
  - (b) nondurable goods
  - (c) quasi-public goods
  - (d) services
5. A firm owns and operates a farm growing wheat, a flour-milling plant, and a plant that bakes and sells bakery products. This firm would best be described as
- (a) a horizontally integrated firm
  - (b) a vertically integrated firm
  - (c) a conglomerate
  - (d) a monopoly
6. Limited liability is associated with
- (a) sole proprietorships
  - (b) partnerships
  - (c) free-riders
  - (d) corporations
7. Which form of business can most effectively raise money capital?
- (a) corporation
  - (b) partnership
  - (c) proprietorship
  - (d) households
8. The separation of ownership and control in a corporation may create
- (a) a principal-agent problem
  - (b) a free-rider problem
  - (c) a monopoly
  - (d) limited liability
9. One major means that government uses to deal with a monopoly is to
- (a) increase the demand for its product
  - (b) decrease the supply of its product
  - (c) stabilize incomes
  - (d) regulate the firm
10. Government redistributes income through
- (a) limited liability
  - (b) conglomerates
  - (c) transfer payments
  - (d) sole proprietorships

11. To redistribute income from high-income to low-income households, government might
- (a) increase transfer payments to high-income and decrease transfer payments to low-income households
  - (b) increase the taxes paid by high-income households and increase the transfer payments to low-income households
  - (c) increase the taxes paid by low-income households and decrease the taxes paid by high-income households
  - (d) decrease the taxes paid by high-income households and decrease the transfer payments to low-income households
12. Which is the best example of a good or service providing the economy with an external cost?
- (a) a textbook
  - (b) an automobile
  - (c) a business suit
  - (d) an audit of a business firm's books

13. Which economic situation would result in overallocation of resources to the production of a good?
- (a) a good with external benefits
  - (b) a good with external costs
  - (c) a good with free-rider problem
  - (d) a good with an inflation problem
14. How does government correct for external benefits?
- (a) by taxing consumers
  - (b) by taxing producers
  - (c) by subsidizing producers
  - (d) by separating ownership from control

15. Which is characteristic of public goods?
- (a) nonrivalry
  - (b) excludability
  - (c) limited liability
  - (d) external costs
16. There is a free-rider problem when people
- (a) are willing to pay for what they want
  - (b) are not willing to pay for what they want
  - (c) benefit from a good without paying for its cost
  - (d) want to buy more than is available for purchase in the market

17. Quasi-public goods are goods and services
- (a) that are indivisible
  - (b) that have large external costs
  - (c) that have large external benefits
  - (d) that would not be produced by private producers through the market system
18. In the circular flow model, government provides goods and services and receives net taxes from
- (a) colleges and universities
  - (b) businesses and households
  - (c) resource and product markets
  - (d) foreign nations and corporations

19. Which accounts for the largest percentage of all Federal expenditures?
- (a) health care
  - (b) national defense

- (c) interest on the public debt
- (d) pensions and income security

20. Which is the largest source of the tax revenues of the Federal government?
- (a) payroll taxes
  - (b) property taxes
  - (c) sales and excise taxes
  - (d) personal income taxes

21. A progressive tax is one where people with
- (a) lower incomes pay the same percentage of their income in taxes as people do with higher incomes
  - (b) lower incomes pay a larger percentage of their income in taxes as people do with higher incomes
  - (c) higher incomes pay a smaller percentage of their income in taxes than people do with higher incomes
  - (d) higher incomes pay a larger percentage of their income in taxes than people do with lower incomes

Questions 22 and 23 are based on the tax table given below. [Note: Total tax is for the highest income in that tax bracket.]

Taxable income	Total tax
\$ 0	\$ 0
30,000	5,000
70,000	15,000
150,000	42,000

22. The marginal tax rate at the \$70,000 level of taxable income is
- (a) 16.6%
  - (b) 21.4%
  - (c) 25.0%
  - (d) 28.0%
23. The average tax rate at the \$150,000 level of taxable income is
- (a) 21.4%
  - (b) 28.0%
  - (c) 31.5%
  - (d) 33.8%

24. Which pair represents the chief source of income and the most important type of expenditure of state governments?
- (a) personal income tax and expenditures for hospitals
  - (b) personal income tax and expenditures for highways
  - (c) sales and excise taxes and expenditures for education
  - (d) sales and excise taxes and expenditures for public safety

25. Which pair represents the chief source of income and the most important type of expenditure of local governments?
- (a) property tax and expenditures for highways
  - (b) property tax and expenditures for education
  - (c) sales and excise taxes and expenditures for public welfare
  - (d) sales and excise taxes and expenditures for police, fire, safety, and general government

■ PROBLEMS

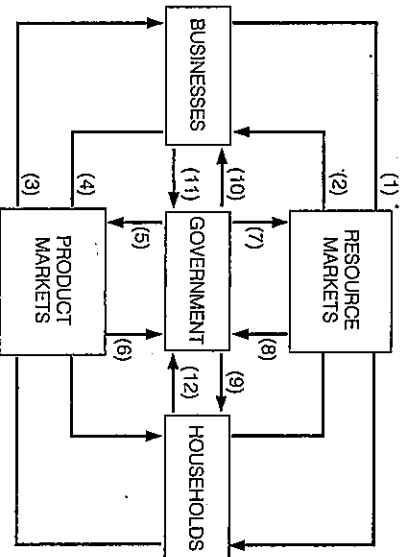
1. The following table shows the functional distribution of total income in the United States in a recent year.

	Billions of dollars
Wages and salaries	\$ 7,874
Proprietors' Income	1,043
Corporate profits	1,595
Interest	603
Rents	65
Total income	\$11,180

Of the total income about \_\_\_\_\_% were wages and salaries, and about \_\_\_\_\_% were corporate profits.

2. Following is a list of various government activities. Indicate in the space to the right of each into which of the five classes of government functions the activity falls. If it falls under more than one of the functions, indicate this.

- a. Maintaining an army \_\_\_\_\_
  - b. Providing for a system of unemployment compensation \_\_\_\_\_
  - c. Establishment of the Federal Reserve Banks \_\_\_\_\_
  - d. Providing medical care for government employees \_\_\_\_\_
  - e. Establishment of an Antitrust Division in the Department of Justice \_\_\_\_\_
  - f. Making it a crime to sell stocks and bonds under false pretenses \_\_\_\_\_
  - g. Providing low-cost lunches to school children \_\_\_\_\_
  - h. Taxation of beer and wine \_\_\_\_\_
  - i. Regulation of organized stock, bond, and commodity markets \_\_\_\_\_
  - j. Setting tax rates higher for larger incomes than for smaller ones \_\_\_\_\_
3. The following circular flow diagram includes business firms, households, and the government (the public sector). Also shown are the product and resource markets.



a. Supply a label or an explanation for each of the 12 flows in the model:

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_
- (6) \_\_\_\_\_
- (7) \_\_\_\_\_
- (8) \_\_\_\_\_
- (9) \_\_\_\_\_
- (10) \_\_\_\_\_
- (11) \_\_\_\_\_
- (12) \_\_\_\_\_

b. If government wished to

- (1) expand output and employment in the economy, it would increase expenditure flows \_\_\_\_\_ or \_\_\_\_\_, decrease net tax flows \_\_\_\_\_ or \_\_\_\_\_, or do both;
- (2) increase the production of public goods and decrease the production of private goods in the economy, it would increase flows \_\_\_\_\_ and \_\_\_\_\_ or \_\_\_\_\_;
- (3) redistribute income from high-income to low-income households, it would (increase, decrease) \_\_\_\_\_ the net taxes (taxes minus transfers) paid by the former and \_\_\_\_\_ the net taxes paid by the latter in flow \_\_\_\_\_.

4. In the following table are several levels of taxable income and hypothetical marginal tax rates for each \$1000 increase in income.

Taxable income	Marginal tax rate, %	Tax	Average tax rate, %
\$1500		\$300	20
2500	22	520	20.8
3500	25	_____	_____
4500	29	_____	_____
5500	34	_____	_____
6500	40	_____	_____

- a. At the four income levels compute the tax and the average tax rate
- b. As the marginal tax rate (1) increases the average tax rate (increases, decreases, remains constant) \_\_\_\_\_
- (2) decreases the average tax rate \_\_\_\_\_
- c. This tax is (progressive, regressive) \_\_\_\_\_ because the average tax rate increases as income (decreases, increases) \_\_\_\_\_

**■ SHORT ANSWER AND ESSAY QUESTIONS**

1. Explain the difference between a functional and a personal distribution of income. List the five major categories for functional income and their relative sizes. Describe the difference between the poorest and richest categories in the personal distribution of income.
2. In what ways do households dispose of their income? How is it possible for a family's personal consumption expenditures to exceed its after-tax income?
3. What is the difference between a plant and a firm? Between a firm and an industry?
4. Define the three legal forms of business organization.
5. Explain the advantages of corporations in terms of financing, liability, and longevity.
6. Explain what "separation of ownership and control" of the modern corporation means. What problem does this separation create for stockholders and managers?
7. How does government provide a legal framework and services for the effective operation of the economy?
8. What does the government do to maintain competition?
9. Why does the market system provide some people with lower incomes than it provides others?
10. What is meant by an externality in general and by an external cost and an external benefit in particular?
11. How does the existence of positive and negative externalities affect the allocation of resources and the prices of products?
12. What methods does government use to reallocate resources to take account of negative and positive externalities?
13. Distinguish between a private and a public good. Include in your answer an explanation of rivalry, excludability, and the free-rider problem.
14. What basic method does government in the United States use to reallocate resources away from the production of private goods and toward the production of public and quasi-public goods?
15. What is the macroeconomic stabilization function of government? What are the two policies that the government or the nation's central bank uses to address problems with unemployment or inflation?
16. How does politics affect the five economic functions of government in practice?
17. In a circular flow diagram that includes not only business firms and households but also government (or the public sector), what are the four flows of money into or out of the government sector of the economy? Using this diagram, explain how government redistributes income, reallocates resources from the private to the public sector, and stabilizes the economy.

18. Government expenditures fall into two broad classes: expenditures for goods and services and transfer payments. Explain the difference between these, and give examples of expenditures that fall into each of the two classes.

19. Explain precisely the difference between the marginal tax rate and the average tax rate.

20. Explain in detail the differences that exist among Federal, state, and local governments in the taxes on which they primarily rely for their revenues and the major purposes for which they use these revenues.

**ANSWERS****Chapter 4 The U.S. Economy: Private and Public Sectors****FILL-IN QUESTIONS**

1. households, sell, buy
2. wages and salaries, rents
3. poorest, richest
4. consumption, saving, taxes (any order)
5. durable, nondurable
6. firms, sole proprietorship, corporation
7. stocks, bonds, unlimited, unlimited
8. principal-agent, principals, agents
9. a. provide legal foundation; b. maintain competition; c. redistribute income; d. reallocate resources; e. stabilize the economy (any order for a-e)
10. regulate, owner, antitrust
11. unequal, transfer, market, income
12. market; a. produces the "wrong" amounts of certain goods and services; b. fails to allocate any resources to the production of certain goods and services whose production is economically justified
13. seller, buyer, external; a. (1) enact legislation, (2) pass special taxes; b. (1) subsidize consumers, (2) subsidize suppliers, (3) government financing or production of the product
14. nonrivalry, nonexcludability, free-rider
15. taxing, tax revenue
16. increasing, decreasing, raising, lowering
17. decreased, increased, exhaustive, nonexhaustive
18. personal income, payroll, pensions and income security
19. higher, lower, marginal, average
20. sales, property, education

**TRUE-FALSE QUESTIONS**

- |                 |                  |                  |
|-----------------|------------------|------------------|
| 1. F, pp. 73-74 | 10. F, pp. 77-78 | 19. T, p. 80     |
| 2. T, p. 74     | 11. F, p. 78     | 20. T, pp. 80-81 |
| 3. T, pp. 74-75 | 12. T, pp. 77-79 | 21. F, pp. 81-82 |
| 4. F, p. 75     | 13. T, p. 79     | 22. F, p. 83     |
| 5. T, p. 75     | 14. T, p. 79     | 23. F, p. 83     |
| 6. F, p. 76     | 15. F, pp. 79-80 | 24. F, pp. 85-87 |
| 7. F, p. 76     | 16. F, p. 80     | 25. T, p. 88     |
| 8. T, p. 76     | 17. T, p. 80     |                  |
| 9. F, p. 76     | 18. F, p. 80     |                  |

## MULTIPLE-CHOICE QUESTIONS

- |                 |                  |                  |
|-----------------|------------------|------------------|
| 1. a, p. 73     | 10. c, pp. 78-79 | 19. d, pp. 84-85 |
| 2. a, p. 74     | 11. b, pp. 78-79 | 20. d, p. 85     |
| 3. c, p. 74     | 12. b, p. 79     | 21. d, p. 85     |
| 4. a, pp. 74-75 | 13. b, p. 79     | 22. c, p. 85     |
| 5. b, p. 75     | 14. c, pp. 79-80 | 23. b, p. 85     |
| 6. d, p. 76     | 15. a, p. 80     | 24. c, pp. 87-88 |
| 7. a, p. 76     | 16. c, p. 80     | 25. b, p. 88     |
| 8. a, pp. 77-78 | 17. c, p. 81     |                  |
| 9. d, p. 78     | 18. b, pp. 82-83 |                  |

## PROBLEMS

1. 70, 14
2. a. reallocates resources; b. redistributes income; c. provides a legal foundation and stabilizes the economy; d. reallocates resources; e. maintains competition; f. provides a legal foundation and maintains competition; g. redistributes income; h. reallocates resources; i. provides a legal foundation; j. redistributes income
3. a. (1) businesses pay costs for resources that become money income for households; (2) households provide resources to businesses; (3) household expenditures become receipts for

businesses; (4) businesses provide goods and services to households; (5) government spends money in product market; (6) government receives goods and services from product market; (7) government spends money in resource market; (8) government receives resources from resource market; (9) government provides goods and services to households; (10) government provides goods and services to businesses; (11) businesses pay net taxes to government; (12) households pay net taxes to government; b. (1) 5, 7 (either order), 11, 12 (either order); (2) 9, 10, 11 (any order); (3) increase, decrease, 12

4. a. tax: \$770, 1,060, 1,400, 1,800; average tax rate: 22%, 23.6%, 25.5%, 27.7%; b. (1) Increases, (2) decreases; c. progressive, increases

## SHORT ANSWER AND ESSAY QUESTIONS

- |              |               |               |
|--------------|---------------|---------------|
| 1. pp. 73-74 | 8. p. 78      | 15. pp. 81-82 |
| 2. pp. 74-75 | 9. pp. 78-79  | 16. p. 82     |
| 3. p. 75     | 10. pp. 79-80 | 17. pp. 82-83 |
| 4. pp. 75-76 | 11. pp. 79-80 | 18. pp. 83-84 |
| 5. pp. 76-77 | 12. pp. 79-80 | 19. pp. 85-86 |
| 6. pp. 77-78 | 13. pp. 80-81 | 20. pp. 85-88 |
| 7. p. 78     | 14. p. 81     |               |

25. The increase in global competition has resulted in
- (a) greater inefficiency among U.S. producers
  - (b) lower quality in the production of goods
  - (c) the inability of most U.S. firms to compete
  - (d) lower prices for many consumer goods and services

■ PROBLEMS

1. The following problem will help you understand the principle of comparative advantage and the benefits of specialization. A tailor named Hart has the production possibilities table for trousers and jackets as given. He chooses production alternative D.

HART'S PRODUCTION POSSIBILITIES TABLE

Product	Production alternatives					
	A	B	C	D	E	F
Trousers	75	60	45	30	15	0
Jackets	0	10	20	30	40	50

Another tailor, Schaffner, has the following production possibilities table and produces production alternative E.

SCHAFFNER'S PRODUCTION POSSIBILITIES TABLE

Product	Production alternatives						
	A	B	C	D	E	F	G
Trousers	60	50	40	30	20	10	0
Jackets	0	5	10	15	20	25	30

a. To Hart,

(1) the cost of one pair of trousers is \_\_\_\_\_ jackets

(2) the cost of one jacket is \_\_\_\_\_ pairs of trousers

b. To Schaffner,

(1) the cost of one pair of trousers is \_\_\_\_\_ jackets

(2) the cost of one jacket is \_\_\_\_\_ pairs of trousers

c. If Hart and Schaffner were to form a partnership to make suits,

(1) \_\_\_\_\_ should specialize in the making of trousers because he can make a pair of trousers at the cost of \_\_\_\_\_ of a jacket while it costs his partner \_\_\_\_\_ of a jacket to make a pair of trousers.

(2) \_\_\_\_\_ should specialize in the making of jackets because he can make a jacket at the cost of \_\_\_\_\_ pairs of trousers while it costs his partner \_\_\_\_\_ pairs of trousers to make a jacket.

d. Without specialization, Hart and Schaffner were able to make 50 pairs of trousers and 50 jackets. If each specializes completely in the item in the production in which he has a comparative advantage, their combined production will be \_\_\_\_\_ pairs of trousers and \_\_\_\_\_ jackets. Thus the gain from specialization is \_\_\_\_\_.

e. When Hart and Schaffner come to divide the income of the partnership between them, the manufacture of a pair of trousers should be treated as the equivalent of from \_\_\_\_\_ to \_\_\_\_\_ jackets (or a jacket should be treated as the equivalent of from \_\_\_\_\_ to \_\_\_\_\_ pairs of trousers).

2. The countries of Lilliput and Brobdingnag have the production possibilities tables for apples and bananas shown below.

Note that the costs of producing apples and bananas are constant in both countries.

LILLIPUT PRODUCTION POSSIBILITIES TABLE

Product	Production alternatives					
	A	B	C	D	E	F
Apples	40	32	24	16	8	0
Bananas	0	4	8	12	16	20

BROBDINGNAG PRODUCTION POSSIBILITIES TABLE

Product	Production alternatives					
	A	B	C	D	E	F
Apples	75	60	45	30	15	0
Bananas	0	5	10	15	20	25

a. In Lilliput the cost of producing

(1) 8 apples is \_\_\_\_\_ bananas

(2) 1 apple is \_\_\_\_\_ bananas

b. In Brobdingnag the cost of producing

(1) 15 apples is \_\_\_\_\_ bananas

(2) 1 apple is \_\_\_\_\_ bananas

c. In Lilliput the cost of producing

(1) 4 bananas is \_\_\_\_\_ apples

(2) 1 banana is \_\_\_\_\_ apples

d. In Brobdingnag the cost of producing

(1) 5 bananas is \_\_\_\_\_ apples

(2) 1 banana is \_\_\_\_\_ apples

e. The cost of producing 1 apple is lower in the country of \_\_\_\_\_ and the cost of producing 1 banana is lower in the country of \_\_\_\_\_.

f. Lilliput has a comparative advantage in the production of \_\_\_\_\_ and Brobdingnag has a comparative advantage in the production of \_\_\_\_\_.

g. The information in this problem is not sufficient to determine the exact terms of trade, but the terms of trade will be greater than \_\_\_\_\_ apples for 1 banana and less than \_\_\_\_\_ apples for 1 banana. Put another way, the terms of trade will be between \_\_\_\_\_ bananas for 1 apple and \_\_\_\_\_ bananas for 1 apple.

h. If neither nation could specialize, each would produce production alternative C. The combined production of apples in the two countries would be \_\_\_\_\_ apples and the combined produc-

tion of bananas would be \_\_\_\_\_ bananas.

(1) If each nation specializes in producing the fruit for which it has a comparative advantage, their combined production will be \_\_\_\_\_ apples and \_\_\_\_\_ bananas.

(2) Their gain from specialization will be \_\_\_\_\_ apples and \_\_\_\_\_ bananas.

3. Use the following table that shows 10 different currencies and how much of each currency can be purchased with a U.S. dollar.

Country	Currency	Currency per U.S. \$		A or D
		Year 1	Year 2	
Brazil	Real	0.85	0.91	
Britain	Pound	0.65	0.59	
Canada	Dollar	1.41	1.51	
Switzerland	Franc	1.33	1.19	
Germany	Euro	1.58	1.69	
India	Ruppee	31.39	34.55	
Japan	Yen	100.15	110.23	
Mexico	Peso	4.65	5.09	
Norway	Krone	6.88	6.49	
Thailand	Bhat	25.12	23.22	

a. In the far right column of the table, indicate whether the U.S. dollar has appreciated (A) or depreciated (D) from year 1 to year 2.

b. In year 1, a U.S. dollar would purchase \_\_\_\_\_ Swiss francs, but in year 2, it would purchase \_\_\_\_\_ Swiss francs. The U.S. dollar has (appreciated, depreciated) \_\_\_\_\_ against the Swiss franc from year 1 to year 2.

c. In year 1, a U.S. dollar would purchase \_\_\_\_\_ Japanese yen, but in year 2, it would purchase \_\_\_\_\_ Japanese yen. The U.S. dollar has (appreciated, depreciated) \_\_\_\_\_ against the Japanese yen from year 1 to year 2.

4. This problem asks you to calculate prices based on exchange rates. Use the data in the table for Problem 3 to answer the following items.

a. Using the exchange rates shown for year 1, what would be the U.S. dollar cost for the following products?

- (1) Japanese television costing 30,000 yen. \$ \_\_\_\_\_
- (2) Swiss scarf costing 200 francs. \$ \_\_\_\_\_
- (3) Thai artwork costing 3,768 bahts. \$ \_\_\_\_\_
- (4) German auto costing 79,000 euros. \$ \_\_\_\_\_
- (5) Mexican silver bracelet costing 1,376 pesos. \$ \_\_\_\_\_

b. Using the exchange rates shown for year 2, what would be the U.S. dollar cost of the following products?

- (1) Japanese television costing 30,000 yen. \$ \_\_\_\_\_

- (2) Swiss scarf costing 200 francs. \$ \_\_\_\_\_
- (3) Thai artwork costing 3,768 bahts. \$ \_\_\_\_\_
- (4) German auto costing 79,000 euros. \$ \_\_\_\_\_
- (5) Mexican silver bracelet costing 1,376 pesos. \$ \_\_\_\_\_

c. Indicate whether the U.S. dollar cost of each product in 4b has increased (+) or decreased (-) from year 1 to year 2 \_\_\_\_\_

d. What is the relationship between your answers in 4c to the ones you gave for the corresponding nations in 3a?

- (1) When the U.S. dollar *appreciates* in value against a foreign currency, the U.S. dollar cost of a product from that nation will (increase, decrease) \_\_\_\_\_.
- (2) When the U.S. dollar *depreciates* in value against a foreign currency, the U.S. dollar cost of a product from that nation will (increase, decrease) \_\_\_\_\_.

#### ■ SHORT ANSWER AND ESSAY QUESTIONS

1. Describe the four major economic flows that link the United States to other nations.
2. What are the principal exports and imports of the U.S. economy? What commodities used in the economy come almost entirely from abroad, and what American industries sell large percentages of their outputs abroad?
3. What is meant by comparative cost and comparative advantage? Explain how comparative advantage determines the terms of trade between nations.
4. What is the gain for a nation that results from specialization in the production of products for which there is a comparative advantage?
5. Describe the characteristics of a foreign exchange market and of exchange rates. Why is an exchange rate an unusual price?
6. Why might an appreciation of the value of the U.S. dollar relative to the Japanese yen depress the U.S. economy and stimulate the Japanese economy? Why might a government intervene in the foreign exchange market and try to increase or decrease the value of its currency?
7. What are the major trade impediments and subsidies? How do they restrict international trade?
8. Why do governments intervene in international trade and develop restrictive trade policies?
9. What is the cost to society from trade protectionism? Who benefits and who is hurt by trade protectionism?
10. What was the Smoot-Hawley Tariff Act of 1930? What international trade problems are illustrated by this act?
11. Explain the basic provisions of the Reciprocal Trade Agreements Act of 1934.

12. What were the cardinal principles contained in the General Agreement on Tariffs and Trade (GATT)? What were the basic provisions and important results of the Uruguay Round of GATT negotiations?

13. Describe the purpose of the World Trade Organization (WTO). Why is it controversial?

14. What is the European Union? What has it achieved?

15. Discuss the potential effects of the European Union on the trade of the United States.

16. What is the euro and what have been its likely economic effects?

17. What is the North American Free Trade Agreement (NAFTA)? What do critics and defenders say about the agreement?

18. Discuss the purpose of the Trade Adjustment Assistance Act of 2002 and its advantages and disadvantages.

19. Explain the reasons U.S. businesses have turned to offshoring and evaluate the costs and benefits of such actions.

20. Evaluate the effects of increased global competition on U.S. firms, workers, and consumers.

## ANSWERS

### Chapter 5 The United States in the Global Economy

#### FILL-IN QUESTIONS

- a. goods and services flows (trade flows); b. capital and labor flows (resource flows); c. information and technology flows; d. financial flows (any order for a-d)
- limited, diversified, Netherlands, United States
- 12-17, largest, Canada, China
- transportation, communications (any order), tariffs
- increase, increase
- comparative advantage, opportunity cost
- depreciation, appreciation, appreciation, depreciation
- supply of, demand for, more
- a. protective tariffs; b. import quotas; c. nontariff barriers; d. export subsidies
- exports, imports, imports, exports, imports
- political, tariffs, quotas, hidden from
- benefit, cost, higher, cost
- upward, downward, Reciprocal Trade Agreements, tariffs, normal-trade-relations
- a. equal, nondiscriminatory treatment of all member nations; b. reduction of tariffs by multilateral negotiations; c. elimination of import quotas
- rounds, World, Doha, reducing, reducing

- European; a. tariffs and quotas, common, free; b. large, lower, increase, decrease; c. euro
- bloc, tariffs, decrease, increase
- workers, small, subsidy
- offshoring, growth, decrease, increase
- compete, competition

#### TRUE-FALSE QUESTIONS

- |                  |                    |                    |
|------------------|--------------------|--------------------|
| 1. T, p. 93      | 10. T, p. 100      | 19. T, p. 104      |
| 2. T, p. 93      | 11. T, p. 101      | 20. T, p. 104      |
| 3. T, pp. 94-95  | 12. F, p. 101      | 21. T, p. 104      |
| 4. T, pp. 96-98  | 13. T, p. 99       | 22. F, p. 105      |
| 5. F, pp. 96-98  | 14. T, pp. 101-102 | 23. T, pp. 105-106 |
| 6. T, pp. 98-99  | 15. F, p. 102      | 24. T, pp. 106-107 |
| 7. T, pp. 99-100 | 16. F, p. 102      | 25. F, p. 108      |
| 8. F, p. 100     | 17. T, pp. 102-103 |                    |
| 9. F, p. 100     | 18. F, pp. 103-104 |                    |

#### MULTIPLE-CHOICE QUESTIONS

- |                 |                    |                    |
|-----------------|--------------------|--------------------|
| 1. c, p. 92     | 10. c, p. 98       | 19. b, pp. 102-103 |
| 2. c, pp. 93-95 | 11. a, pp. 98-99   | 20. d, p. 103      |
| 3. b, p. 94     | 12. b, pp. 99-100  | 21. b, p. 103      |
| 4. b, p. 95     | 13. b, p. 100      | 22. c, p. 104      |
| 5. d, p. 95     | 14. c, p. 100      | 23. b, p. 105      |
| 6. d, p. 96     | 15. c, p. 100      | 24. d, pp. 105-106 |
| 7. a, p. 96     | 16. c, p. 101      | 25. d, p. 108      |
| 8. c, pp. 96-98 | 17. c, pp. 101-102 |                    |
| 9. c, pp. 96-98 | 18. c, p. 102      |                    |

#### PROBLEMS

- a. (1) 67, (2) 1.5; b. (1) .5, (2) 2; c. (1) Schaffner, 5, 67, (2) Hart, 1.5, 2; d. 60, 50, 10 pairs of trousers; e. .5, 67, 1.5, 2
- a. (1) 4, (2) .5; b. (1) 5, (2) .33; c. (1) 8, (2) 2; d. (1) 15, (2) 3; e. Brodingtonag, Lilliput; f. bananas, apples; g. 2, 3, .33, .5; h. 69, 18, (1) 75, 20, (2) 6, 2
- a. A, D, A, D, A, A, A, A, D, D, b. 1.33, 1.19, depreciated; c. 100.15, 110.23, appreciated
- a. (1) 299.55 (2) 150.38 (3) 150 (4) 50,000 (5) 295.91; b. (1) 272.16 (2) 168.07 (3) 162.27 (4) 46,745.56 (5) 270.33; c. (1) - (2) + (3) + (4) - (5) -; d. (1) decrease (2) increase

#### SHORT ANSWER AND ESSAY QUESTIONS

- |               |                 |                 |
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| 1. p. 92      | 8. pp. 101-102  | 15. p. 104      |
| 2. pp. 92-95  | 9. p. 102       | 16. pp. 104-105 |
| 3. pp. 96-98  | 10. p. 102      | 17. p. 105      |
| 4. pp. 98-99  | 11. pp. 102-103 | 18. pp. 105-106 |
| 5. p. 99      | 12. p. 103      | 19. pp. 106-107 |
| 6. pp. 99-100 | 13. pp. 103-104 | 20. p. 108      |
| 7. p. 101     | 14. p. 104      |                 |

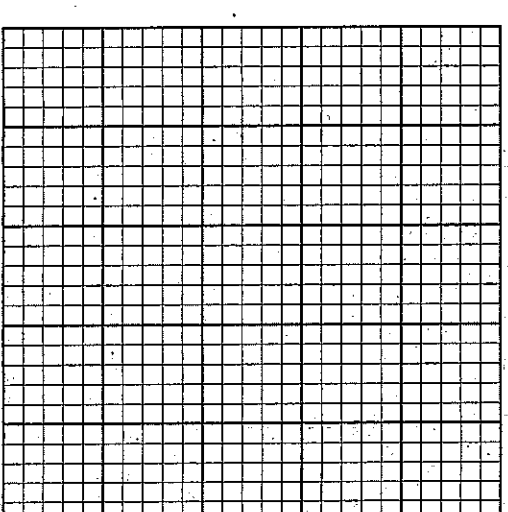
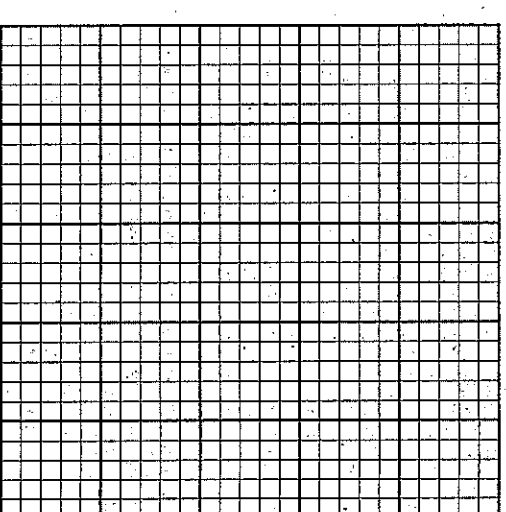
26. Given the demand curve, the consumer surplus is
- (a) increased by higher prices and decreased by lower prices
  - (b) decreased by higher prices and increased by lower prices
  - (c) increased by higher prices but not affected by lower prices
  - (d) decreased by lower prices, but not affected by higher prices
27. The difference between the actual price that a producer receives (or producers receive) and the minimum acceptable price is producer
- (a) cost
  - (b) wealth
  - (c) surplus
  - (d) investment
28. The minimum acceptable price for a product that Juan is willing to receive is \$20. It is \$15 for Carlos. The actual price they receive is \$25. What is the amount of the producer surplus for Juan and Carlos combined?
- (a) \$10
  - (b) \$15
  - (c) \$20
  - (d) \$25
29. When the combined consumer and producer surplus is at a maximum for a product,
- (a) the quantity supplied is greater than the quantity demanded
  - (b) the market finds alternative ways to ration the product
  - (c) the market is allocatively efficient
  - (d) the product is a nonpriced good
30. When the output is greater than the optimal level of output for a product there are efficiency
- (a) gains from the underproduction of the product
  - (b) losses from the underproduction of the product
  - (c) gains from the overproduction of the product
  - (d) losses from the overproduction of the product

■ PROBLEMS

1. Complete the following table, using the demand data given, by computing total revenue at each of the seven prices and the six price elasticity coefficients between each of the seven prices, and indicate whether demand is elastic, inelastic, or unit elastic between each of the seven prices.

Price	Quantity demanded	Total revenue	Elasticity coefficient	Character of demand
\$1.00	300	_____	_____	_____
.90	400	_____	_____	_____
.80	500	_____	_____	_____
.70	600	_____	_____	_____
.60	700	_____	_____	_____
.50	800	_____	_____	_____
.40	900	_____	_____	_____

2. Use the data from the table for this problem. On the first of the two following graphs, plot the demand curve (price and quantity demanded) and indicate the elastic, inelastic, and unit elastic portions of the demand curve. On the second graph, plot the total revenue on the vertical axis and the quantity demanded on the horizontal axis. (Note: The scale for quantity demanded that you plot on the horizontal axis of each graph should be the same.)

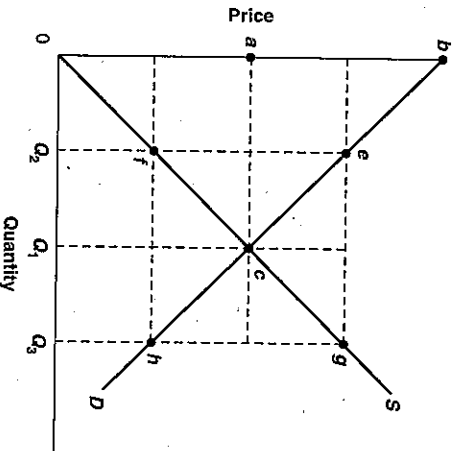


- a. As price decreases from \$1.00 to \$.70, demand is \_\_\_\_\_ (elastic, inelastic, unit elastic) \_\_\_\_\_ and total revenue (increases, decreases, remains the same)
- b. As price decreases from \$.70 to \$.60, demand is \_\_\_\_\_ (elastic, inelastic, unit elastic) \_\_\_\_\_ and total revenue (increases, decreases, remains the same)

8. Given the following information, calculate the producer surplus for each producer A to F.

(1) Producers	(2) Minimum Acceptable Price	(3) Actual price (equilibrium price)	(4) Producer surplus
A	\$4	\$12	_____
B	5	12	_____
C	7	12	_____
D	9	12	_____
E	10	12	_____
F	12	12	_____

9. Answer this question based on the following graph showing the market supply and demand for a product. Assume that the output level is  $Q_1$ .



- The area of consumer surplus would be shown by the area \_\_\_\_\_.
- The area of producer surplus would be shown by the area \_\_\_\_\_.
- The area that maximizes the combined consumer and producer surplus is \_\_\_\_\_.
- If the output level is now  $Q_2$ , then there are efficiency losses shown by area \_\_\_\_\_.
- If the output level is now  $Q_3$ , then there are efficiency losses shown by area \_\_\_\_\_.

#### ■ SHORT ANSWER AND ESSAY QUESTIONS

1. Define and explain the price elasticity of demand in terms of the relationship between the relative (percentage) change in quantity demanded and the relative (percentage) change in price. Use the elasticity coefficient in your explanation.

2. What is meant by perfectly elastic demand? By perfectly inelastic demand? What does the demand curve look like when demand is perfectly elastic and when it is perfectly inelastic?

3. Demand seldom has the same elasticity at all prices. What is the relationship between the price of most products and the price elasticity of demand for them?

4. What is the relationship—if there is one—between the price elasticity of demand and the slope of the demand curve?

5. When the price of a product declines, the quantity demanded of it increases. When demand is elastic, total revenue is greater at the lower price, but when demand is inelastic, total revenue is smaller. Explain why total revenue will sometimes increase and why it will sometimes decrease.

6. Explain the effect of the number of substitutes on the price elasticity of demand.

7. Why does the price elasticity of demand differ based on the price of a good as a proportion of household income? Give examples.

8. Is the quantity demanded for necessities more or less responsive to a change in price? Explain using examples.

9. What role does time play in affecting the elasticity of demand?

10. How do opponents of the decriminalization of illegal drugs use elasticity to make their arguments?

11. Explain what determines the price elasticity of supply of an economic good or service.

12. Why is there no total revenue test for the elasticity of supply?

13. Discuss the supply and demand conditions for antiques. Why are antique prices so high?

14. Use the concepts of the elasticity of supply to explain the volatility of gold prices.

15. How can goods be classified as complementary, substitute, or independent? On what basis is this judgment made?

16. Give definitions of a normal good and an inferior good. Illustrate each definition with an example.

17. What are two examples of insights that income elasticity of demand coefficients provide about the economy?

18. How is the consumer surplus related to utility or satisfaction? Explain, using a supply and demand graph.

19. Define, using a supply and demand graph, the meaning of producer surplus.

20. Use consumer and producer surplus to describe efficiency losses in a competitive market. Provide a supply and demand graph to show such losses.

## ANSWERS

## Chapter 6 Elasticity, Consumer Surplus, and Producer

## Surplus

## FILL-IN QUESTIONS

- inelastic, elastic
- average, average
- percentages, responsiveness
- inelastic, vertical, elastic, horizontal
- varies, an unsound
- greater; b. less; c. is equal to
- Elastic: greater than 1, decrease, increase; Inelastic: less than 1, increase, decrease; Unit elastic: equal to 1, remain constant, remain constant
- a. The number of good substitute products; b. The relative importance of the product in the total budget of the buyer; c. Whether the good is a necessity or a luxury; d. The period of time in which demand is being considered (any order a-d)
- inelastic, decrease, inelastic, increase
- quantity supplied, price, time, more
- inelastic, vertical, less, more
- demand, supply, directly
- cross, income
- substitutes, complements, independent
- normal or superior, inferior
- maximum, less, negatively, decrease, increase
- minimum, more, positively, increase, decrease
- productive, allocative
- equal to, equal to, maximum
- losses, losses, less than

## TRUE-FALSE QUESTIONS

- |                    |                    |                    |
|--------------------|--------------------|--------------------|
| 1. F, p. 114       | 11. T, p. 120      | 22. F, pp. 124-125 |
| 2. T, p. 114       | 12. T, p. 120      | 23. T, p. 125      |
| 3. F, p. 115       | 13. F, p. 120      | 24. F, p. 125      |
| 4. F, pp. 116-118  | 14. T, p. 121      | 25. F, pp. 126-127 |
| 5. F, p. 118       | 15. F, p. 121      | 26. T, pp. 126-127 |
| 6. T, pp. 116-118, | 16. T, p. 122      | 27. F, pp. 126-127 |
| 120                | 17. F, p. 122      | 28. T, pp. 127-128 |
| 7. F, pp. 118-119  | 18. T, pp. 122-123 | 29. F, pp. 127-128 |
| 8. T, pp. 120-121  | 19. T, pp. 123-124 | 30. F, p. 129      |
| 9. T, pp. 120-122  | 20. F, p. 124      |                    |
| 10. F, p. 120      | 21. F, pp. 124-125 |                    |

## MULTIPLE-CHOICE QUESTIONS

- |                    |                    |                    |
|--------------------|--------------------|--------------------|
| 1. c, p. 114       | 11. c, pp. 116-118 | 21. a, p. 125      |
| 2. b, p. 115       | 12. d, pp. 117-118 | 22. c, p. 125      |
| 3. b, pp. 115-116  | 13. d, p. 120      | 23. a, p. 125      |
| 4. b, pp. 118-119  | 14. b, p. 120      | 24. b, p. 125      |
| 5. d, pp. 118-119  | 15. d, p. 120      | 25. a, pp. 126-127 |
| 6. b, pp. 119-120  | 16. c, p. 122      | 26. b, pp. 126-127 |
| 7. b, pp. 119-120  | 17. a, p. 122      | 27. c, pp. 127-128 |
| 8. a, pp. 116-118  | 18. b, p. 122      | 28. b, pp. 127-128 |
| 9. b, p. 117       | 19. b, pp. 122-123 | 29. c, pp. 128-129 |
| 10. a, pp. 116-118 | 20. b, p. 125      | 30. d, p. 129      |

## PROBLEMS

- Total revenue: \$300, 360, 400, 420, 420, 400, 360; Elasticity coefficient: 2.71, 1.89, 1.36, 1, 0.73, 0.53; Character of demand: elastic, elastic, elastic, unit elastic, inelastic, Inelastic
- a. elastic, increases; b. unit elastic, remains the same; c. inelastic, decreases
- Elasticity coefficient: 1.27, 1.31, 1.36, 1.44, 1.57, 1.8; Character of supply: elastic, elastic, elastic, elastic, elastic, elastic
- a. (1)  $S_3$ ; (2)  $S_2$ ; (3)  $S_1$ ; b.  $P_1$ ,  $Q_1$ , (1)  $P_4$ ,  $Q_1$ ; (2)  $P_3$ ,  $Q_2$ ; (3)  $P_2$ ,  $Q_3$ ; c. more; d. less, greater
- a. 43, substitute; b. -71, complement; c. 02, independent
- N, N, 1, 1, N
- 13, 11, 6, 4, 1, 0
- 8, 7, 5, 3, 2, 0
- a. abc; b. Oac; c. Obc; d. efc; e. ghc

## SHORT ANSWER AND ESSAY QUESTIONS

- |                |                 |                 |
|----------------|-----------------|-----------------|
| 1. pp. 114-115 | 8. p. 120       | 15. p. 125      |
| 2. pp. 115-116 | 9. p. 120       | 16. p. 125      |
| 3. pp. 118-119 | 10. pp. 121-122 | 17. pp. 125-126 |
| 4. pp. 118-119 | 11. p. 122      | 18. pp. 126-127 |
| 5. pp. 116-118 | 12. p. 124      | 19. pp. 127-128 |
| 6. p. 120      | 13. p. 124      | 20. p. 129      |
| 7. p. 120      | 14. p. 124      |                 |