CHAPTER 1

INTRODUCTION

Chapter in a Nutshell

Economics is an important branch of the social sciences where study is focused on three critical areas of human behavior. First, economists study the problems that arise because resources are scarce and people’s wants are insatiable. If resources are scarce and human wants are unlimited, then it makes sense that choices have to be made. It’s the making of these choices that forms the other two areas of human behavior that economists study. Choices have to be made about allocating scarce resources to produce goods and services to satisfy insatiable wants. The third area of human behavior that economists study is distribution. Once goods and services are produced, they have to be distributed to people. The way goods and services are distributed is crucial to understanding how an economy performs. In our society, consumer sovereignty drives the production of most goods and services, meaning that consumers are free to decide what they want to purchase in the marketplace. Consumers form households that supply renewable and nonrenewable resources to firms that produce goods and services. Firms are guided by the market, just as if they were being led by an invisible hand, to produce exactly the goods and services that consumers want.

Production and distribution are complicated social processes. Economists use models to help simplify the study of real-world economic relationships. These models help economists to understand cause-and-effect relationships in the economy. Economists use models to study microeconomic and macroeconomic relationships. Microeconomics focuses on individual economic relationships. Macroeconomics studies the behavior of the economy as a whole. Economists use positive analysis — the study of the economic relationships that exist in the economy and normative analysis — the study of what ought to be in the economy. Economists have made substantial progress toward a better understanding of the economy due to the collection of better economic data over the last 50 years and the use of new statistical methods to test the accuracy of economic models. Econometrics is the branch of economics that deals with the use of statistical methods to analyze economic data. Even though economists’ predictions aren’t perfect, they are improving as economic knowledge advances.

After you study this chapter, you should be able to:

- Describe the finite character of the earth’s resources.
- Distinguish between renewable and nonrenewable resources.
- Discuss people’s insatiable wants.
- Connect Adam Smith’s idea of the invisible hand to the way markets work.
- Tell how scarcity and choice are related to each other.
- Explain why economic models are used.
- Define and contrast microeconomics and macroeconomics.
- Compare positive and normative economics.
Concept Check — See how you do on these multiple-choice questions.

All of our resource supplies are finite. And, for practical purposes, human wants can be described as insatiable. Do you see a problem here?

1. The finite character of resource supplies combined with insatiable wants results in
   a. normative economics
   b. ceteris paribus
   c. the problem of scarcity
   d. the circular flow model
   e. consumer sovereignty

Economic analysis can be carried on at the level of households and firms, or it can be done at the level of the economy as a whole. What are these types of analysis called?

2. Economists who study microeconomic questions focus on
   a. national saving and investment
   b. unemployment and inflation
   c. the economy as a whole
   d. individual economic behavior
   e. circular flows

Positive economics describes what exists in the economy.

3. Which of the following statements makes a positive economics statement?
   a. Greenhouse gas emissions should be cut by 10 percent from 1990 levels
   b. Carbon dioxide emissions contribute to global warming
   c. A tax should be placed on gasoline to decrease carbon dioxide emissions
   d. Developing countries ought to limit their greenhouse gas emissions
   e. Slowing down global warming should be a top priority for the United States

Economic models are used to simplify real-world economic relationships in order to understand them better.

4. A major advantage of using economic models is that they
   a. allow us to focus on only the most important variables
   b. are expressed algebraically and not in words
   c. are able to capture all the elements in economic relationships
   d. force us to use econometric methods
   e. emphasize the role played by scarcity and insatiable wants

Can cause-and-effect economic relationships be identified if all variables change simultaneously?

5. The primary reason for using the ceteris paribus assumption is that it allows us to
   a. examine a relationship where all variables change together
   b. predict economic changes with nearly perfect accuracy
   c. examine the impact of changes in variables one at a time
   d. distinguish between microeconomics and macroeconomics
   e. hold stocks of nonrenewable resources constant
Am I on the Right Track?

Your answers to the questions above should be c, d, b, a, and c. It’s very important that you appreciate how scarcity forces people in a society to make choices about what is produced and how the output is distributed. Scarcity and choice are at the heart of economic analysis. You should also have an appreciation for the ways that economic analysis is conducted. For example, the distinction between microeconomics and macroeconomics should be clear. Positive economic analysis and normative economic analysis are also easily distinguishable. Try using the ceteris paribus assumption in a conversation with one of your friends. If you can explain it to them after they give you a strange look, then you are probably on the right track.

Key Terms Quiz — Match the term on the left with the definition in the column on the right.

1. natural resources  _____ a. social science that studies scarcity and choice
2. macroeconomics  _____ b. statistical methods for testing economic models
3. insatiable wants  _____ c. what ought to be
4. positive economics  _____ d. free choice in the market on what to buy
5. scarcity  _____ e. simplification of real-world economic relationships
6. normative economics  _____ f. unlimited desires for goods
7. economics  _____ g. the study of individual economic behavior
8. econometrics  _____ h. the study of human behavior generally
9. consumer sovereignty  _____ i. other things being equal
10. social sciences  _____ j. exchange relationships between households and firms
11. economic model  _____ k. what is
12. ceteris paribus  _____ l. people living under one roof with a source of income
13. circular flow model  _____ m. an enterprise that produces goods and/or services for market
14. household  _____ n. renewable and nonrenewable gifts of nature
15. firm  _____ o. market guides firms to produce goods and services people want
16. microeconomics  _____ p. finiteness of resources relative to unlimited wants
17. invisible hand  _____ q. the study of the economy as a whole

True-False Questions — If a statement is false, explain why.

1. Economists regard natural resources as gifts of nature. (T/F)

2. The main difference between renewable and nonrenewable resources is that we will never run out of renewable resources, but we will someday exhaust our nonrenewable resources. (T/F)

3. Because human wants are insatiable, scarcity would be a problem even if resources were found in unlimited supplies. (T/F)

4. Economic models are simplifications or abstract representations of economic reality. (T/F)

5. In the resource market depicted in the circular flow model, wages, rent, interest, and profit flow toward firms and labor, land, capital, and entrepreneurship flow toward households. (T/F)
6. Adam Smith’s idea of the invisible hand suggests that by pursuing their self interest in everyday economic behavior, people will fail to serve the interest of society as a whole. (T/F)

7. The circular flow model would better represent the real world if flows of money, resources, goods, and services to and from government were included. (T/F)

8. The *ceteris paribus* assumption is often used to simplify economic analysis. (T/F)

9. Economics is one of the social sciences because it examines individual and social behavior. (T/F)

10. Microeconomics is more useful than macroeconomics because it gives a more detailed picture of the economy. (T/F)

11. Macroeconomic analysis focuses on economic activity at the level of the whole economy rather than at the level of the individual. (T/F)

12. Positive economics analyzes the way the economy actually operates. (T/F)

13. Normative economics is free from value judgments. (T/F)

14. An economist hired to formulate economic policies for a presidential candidate would never engage in positive economic analysis. (T/F)

15. Because social scientists work with models that are precisely accurate in their predictions, they can develop policies that will solve any social problems we face. (T/F)

**Multiple-Choice Questions**

1. The difference between a renewable resource and a nonrenewable resource is that
   a. a renewable resource can never be depleted while a nonrenewable resource is depleted as it is used
   b. a nonrenewable resource can never be depleted while a renewable resource is depleted as it is used
   c. the stock of a renewable resource can be maintained forever
   d. conservation efforts cannot save renewable resources
   e. renewable resources are liquids and nonrenewable resources are solids

2. Economics is a social science that explores the problem of
   a. how society transforms scarce resources into goods and services
   b. persuading people to limit their wants
   c. scarcity in poor countries but not rich countries
   d. what ought to be done to make the world a better place
   e. circular flows within the family unit
3. Economists use the *ceteris paribus* assumption in their analysis because it
   a. converts positive economic statements to normative ones
   b. converts normative economic statements to positive ones
   c. is the only way to move from theoretical model building to the real world
   d. allows us to develop one-to-one, cause-and-effect relationships
   e. broadens the scope of analysis, creating a social science approach to the subject

4. Positive economics deals with ________________ while normative economics considers ________________.
   a. what ought to be; what is
   b. what is; what ought to be
   c. good policies; policies for normal times
   d. improvements in living standards; how to keep the economy steady over time
   e. a positive approach to economic problems; a normal approach to problems

5. Microeconomics is the branch of economics that analyzes ________________ while macroeconomics is the branch of economics that analyzes ________________.
   a. the behavior of individual economic units; how national economies work
   b. how national economies work; the behavior of individual economic units
   c. positive questions; normative questions
   d. historical issues on a micro scale; contemporary issues on a large scale
   e. economic details; broader aspects of economic issues

6. In the circular flow model, households furnish labor, capital, land, and entrepreneurship to businesses for which they are paid ________, __________, __________, and __________, respectively.
   a. profit, interest, rent, wages
   b. wages, interest, rent, profit
   c. wages, interest, profit, rent
   d. wages, profit, interest, rent
   e. wages, rent, interest, profit

7. If we accept the assumption that people have insatiable wants and that the resources available to satisfy these wants are finite, then
   a. misery is guaranteed for all
   b. the economy is easy to model
   c. because of scarcity, people are forced to make choices
   d. consumer sovereignty can be invoked to eliminate scarcity
   e. firms and households will cooperate to decrease wants and increase resource supplies

8. An economist who is attempting to accurately estimate the unemployment rate for a national economy is practicing
   a. microeconomics
   b. normative economics
   c. positive economics
   d. consumer sovereignty
   e. sociology

9. Microeconomics is a subarea of economics that focuses on
   a. the economies of smaller countries
   b. the behavior of the economy as a whole
   c. the use of statistics to quantify and test economic models
   d. the product market loops in the circular flow model
   e. the market behavior of individual households and firms
10. Models that economists use are
   a. perfect representations of the real world
   b. typically useless oversimplifications of the real world
   c. abstractions of an economic reality
   d. exempt from *ceteris paribus*
   e. applicable only to macroeconomics

11. Money flows in resource markets represent payments to __________ whereas, money flows in product markets represent payments to _____________________.
   a. business firms; workers
   b. natural resource owners; banks
   c. the government; private businesses
   d. property owners; only the most productive individuals
   e. households; firms producing goods and services

12. The circular flow model presented in the text includes which participants?
   a. firms and the government
   b. households, banks, and firms
   c. households and the government
   d. firms, households, and the government
   e. firms and households

13. Which of the following statements is not a positive statement?
   a. Taxes on the rich should be increased.
   b. Poverty in America is increasing.
   c. The poor receive larger amounts of government aid than they did 10 years ago.
   d. Price ceilings are used to keep the prices of necessities low.
   e. Subsidies to farmers in America are a cause of surplus production.

14. Because it is impossible to run controlled experiments in economics so that only one variable is changed at a time, economists
   a. create extremely complex economic models
   b. create very simple models
   c. use the *ceteris paribus* assumption in their analysis
   d. focus on demand and supply
   e. cannot hope to improve their understanding of the economy

15. All of the following are examples of nonrenewable resources **except**
   a. forests
   b. iron ore
   c. coal
   d. oil
   e. natural gas

16. All of the following are examples of renewable resources **except**
   a. the sea
   b. fish in the sea
   c. gold used to make earrings
   d. labor used to grow corn
   e. corn used to feed cattle
17. Although scarcity exists today, it is not nearly as severe as it was in ancient times. Looking to the future, economists believe that societies will better cope with scarcity
a. by developing new technologies that create greater supply to satisfy human wants
b. by producing enough to completely satisfy human wants
c. by doing better positive economic analysis
d. by doing better normative economic analysis
e. with more accurate economic models

18. Using the *ceteris paribus* assumption to study the effect of an increase in the price of mustard on the amount of ketchup that is purchased requires that
a. the price of mustard be held constant
b. both the price of mustard and the amount of ketchup purchased be held constant
c. everything except the price of mustard and the amount of ketchup purchased be held constant
d. nothing should be held constant
e. econometrics be used

19. Consumer sovereignty is a term used to describe the way
a. voters choose their leaders at the ballot box
b. consumers determine which goods and services are produced with their purchases
c. scarcity ultimately controls the consumption patterns of households
d. the invisible hand leads people to help others
e. consumers decide what to purchase

*The following questions relate to the historical and theoretical perspectives presented in the text.*

20. Stanley Jevons’s prediction in 1865 that England’s economic power would collapse because of the depletion of coal has proven to be
a. true because so few workers mine coal in England today
b. true because coal is a nonrenewable resource
c. false because coal reserves are renewable to some extent over long periods
d. false because England has switched to oil and natural gas as substitute energy sources
e. false because productivity growth in the British coal industry has been high

21. After the price of oil soared in the late 1970s, one of the economic responses was
a. a dramatic shift to the use of more abundant coal supplies as an energy source
b. a decision to leave the remaining oil in the ground as part of a conservation effort
c. a decrease in drilling for oil since little was left to be discovered
d. the widespread adoption of solar energy
e. an increase in the number of active drilling rigs to the highest level since 1940

22. Adam Smith’s idea of the invisible hand as it is applied to the circular flow model links
a. wages with households furnishing labor to firms
b. flows of renewable and nonrenewable resources
c. consumer sovereignty with the pursuit of self-interest by firms in the product market
d. consumer sovereignty with the pursuit of self-interest in the resource market
e. microeconomics with macroeconomics

**Fill in the Blanks**

1. Resources that are _____________________ can be maintained forever with properly managed conservation.
2. Examples of disciplines that are part of the social sciences include ________________, ________________, ________________, ________________, and ________________.

3. In order for an economist to make the statement that as its price increases, the quantity demanded for filet mignon will decrease, the ________________ assumption will have to be introduced.

4. Households ________________ land, labor, capital, and entrepreneurship to firms in return for ________________ that they use to ________________ goods and services produced by firms.

5. Economists who make normative statements concerning economic issues apply their own personal and social ________________ to make these statements.

Discussion Questions

1. What do economists study? Identify the main branches of economics and the types of analysis that are used.

2. How do social values and responsibilities influence economic behavior?

3. Can you imagine scarcity becoming a thing of the past? Think about what was available to your grandparents compared to what you have at your disposal. What does it tell you?
4. Why aren’t economists’ predictions perfect?

5. Suppose that you were to make the circular flow model more detailed by including banks and the government. How would the addition of these groups change the model?

Everyday Applications

1. Go to the business pages of a newspaper and survey the content of the articles there. How many of the articles are about microeconomic topics? How many are about macroeconomics? Can you pick out any predictions that economists or business analysts are making in these articles? What sort of economic models seem to be the basis for their predictions?

2. Watch the Jim Lehrer News Hour on PBS some evening and analyze the discussions between interviewers and guests for positive and normative content. How do the people being interviewed use positive analysis to support their normative arguments? Can you see how the two types of analysis can work together?

Economics Online

For a peek into the wild and wonderful world of econometrics, visit the SHAZAM homepage (http://econometrics.com/). SHAZAM is an econometrics computer program. You probably won’t understand many of the technical terms on this homepage, but if you continue with your study of economics, you’ll come to appreciate how useful econometrics can be. Better yet, it can be fun, especially with the computer technologies now available.

Answers to Questions

Key Terms Quiz

| a. 7 | f. 3 | k. 4 | p. 5 |
| b. 8 | g. 16 | l. 14 | q. 2 |
| c. 6 | h. 10 | m. 15 |
| d. 9 | i. 12 | n. 1 |
| e. 11 | j. 13 | o. 17 |

True-False Questions

1. True
2. False. Renewable resources may run out if society consumes them more rapidly than they are renewed. Nonrenewable resources may never run out if they can be replaced by renewable substitutes.
3. True
4. True
5. False. In the circular flow model, wages, rent, interest, and profit flow toward households and labor, land, capital, and entrepreneurship flow toward firms.
6. False. Smith’s concept of the invisible hand suggests that by pursuing their self interest in the market, people will be led, as if by an invisible hand, to serve the interest of society at large.
7. True
8. True
9. True
10. False. Whether micro or macroeconomics is more useful depends on what problems are under consideration.
11. True
12. True
13. False. Positive economics is free from value judgments.
14. False. The economist would certainly want to understand how the economy works to draw cause-and-effect conclusions.
15. False. The social sciences use models that are not perfect representations of the world.

Multiple-Choice Questions

1. c  6. b  11. e  16. c  21. e
2. a  7. c  12. e  17. a  22. c
3. d  8. c  13. a  18. c
4. b  9. e  14. c  19. b
5. a  10. e  15. a  20. d

Fill in the Blanks

1. renewable
2. economics, sociology, anthropology, political science, psychology
3. *ceteris paribus*
4. supply, payments, purchase
5. values

Discussion Questions

1. Economists study how societies cope with the problem of scarcity. For example, economists study the allocation of scarce resources for production of goods and services. Distribution of these goods and services is also a focus of analysis. Economists develop theoretical models to help them sort out the core issues in economic questions. It is possible to test these theoretical models against real-world data. The main branches of economics are microeconomics and macroeconomics, while econometrics is also an important field. Economists pursue both positive and normative analysis in their work.

2. Even though consumer sovereignty guides what we buy and, therefore, what we produce for the market, our economic choices are nonetheless constrained by social values and responsibilities. For example, most cultures find extremely excessive and wasteful behavior to be inappropriate. Certain types of drugs are illegal in most cultures, though this varies from society to society. We feel a responsibility to pay taxes even though we would prefer not to. So, even though the consumer is mostly sovereign, limits are placed on economic behavior by our shared cultural values and responsibilities.

3. We will always have scarcity because of unlimited wants. However, the advances of the industrial revolution in recent history have helped to diminish the severity of scarcity. Pick up a 1950s Sears catalog and look at the mix of goods that was available to American consumers then. Or read the opening pages of Dickens’s *A Tale of Two Cities*. Imagine yourself using these goods to satisfy your wants. Would you
trade places with these earlier consumers?

4. Economists’ predictions aren’t perfect because it is impossible to control for changes in the myriad variables that may affect the variable being predicted. Sometimes the data used by economists turn out to be flawed.

5. Households contribute savings to banks, which, in turn make loans to firms and to households. Households also furnish resources to banks, as they do to other firms, and banks make payments to households for supplying resources. Households pay taxes to the government and, in return, receive payments such as Social Security from the government. Moreover, government makes payments to business firms for products that they supply to government. Also, households supply resources to government and the government makes payments for these resources in return.

**APPENDIX**

**ON READING GRAPHS**

**Appendix in a Nutshell**

The appendix acquaints you with some of the techniques that economists use in translating economic concepts to mathematical and graphical forms. Remember, anything that is expressed mathematically or graphically can also be expressed in words. The reason we use math and graphs in economics is because they simplify discussions. The intention is not to make life more difficult for those trying to do economics but, rather, to make concepts that would be difficult to express in prose more easily understandable. Graphs in economics are a classic case of pictures being worth a thousand words. None of the mathematics and graphs in this text are terribly difficult. So, relax, graphing can be fun.

*After you study this appendix, you should be able to:*

- Find the **origin** of a graph.
- Measure distances on graphs.
- Graph relationships between independent and dependent variables.
- Connect points representing data from a table to form a graph.
- Explain what is meant by the **slope of a curve**.
- Describe various shaped curves by their slopes.
- Measure the **slope at a point on a curve**.

**Concept Check** — See how you do on these multiple-choice questions.

What are the $x$ and $y$ coordinates that we associate with the origin?

1. The **origin** of a graph is
   a. the end of the line that describes the independent variable
   b. the slope of the curve
   c. the graph’s point of reference
   d. the sum of the horizontal and vertical distances on the graph
   e. where one starts to connect points to form a curve
Typically, economists work with **relationships that express dependence**. For example, the amount of a good that people are willing to buy depends on its price.

2. The **independent variable** and the **dependent variable** in a relationship reflect a linkage between them such that
   a. changes in the dependent variable depend on changes in the value of the independent variable
   b. the dependent variable always has a larger value than the independent variable
   c. the dependent variable is always some multiple of the independent variable
   d. as the independent variable increases, so does the dependent variable
   e. as the independent variable increases, the dependent variable decreases

Slopes can be either positive or negative, and they can be either constant or changing.

3. The **slope** of a curve measures the
   a. ratio of the change in the variable on the horizontal axis to the change in the variable on the vertical axis
   b. ratio of the change in the variable on the vertical axis to the change in the variable on the horizontal axis
   c. rate of decrease in the dependent variable
   d. rate of increase in the independent variable
   e. percentage change in the dependent variable divided by the percentage change in the independent variable

Sketch a U-shaped curve and a hill-shaped curve and use the definition of slope to determine the correct answer for this question.

4. Curves that are **U-shaped** have slopes that are first ____________ and then turn ___________, while curves that are **hill-shaped** have slopes that are first ____________ and then turn ____________.
   a. decreasing; increasing; increasing; decreasing
   b. negative; positive; positive; negative
   c. positive; negative; negative; positive
   d. rising; falling; falling; rising
   e. zero; infinite; infinite; zero

Measuring the slope at a point on a curve is necessary if the slope is not constant. If the slope of a curve is constant, then it is a straight line.

5. In order to measure the **slope at a point on a curve**, one should
   a. find the x and y values of the point
   b. divide the x value of the point by the y value
   c. draw a line from the origin to the point and find the slope of the line
   d. divide the y value of the point by the x value
   e. draw a tangent through the point and find the slope of the tangent

**Am I on the Right Track?**

Your answers to the questions above should be c, a, b, b, and e. Some of the terms used in the concept check show up in the key terms quiz below. Make sure you clearly understand their meanings.

**Key Terms Quiz** — Match the terms on the left with the definitions in the column on the right.

1. origin  _____ a. a variable whose value influences the value of another variable
2. independent variable  _____ b. a straight line that touches a curve at only one point
3. dependent variable  _____ c. the slope of a curve at its point of tangency
4. slope of a curve  _____ d. a graph’s point of reference
5. tangent  _____ e. a variable whose value depends on the value of another variable
6. slope of a tangent  _____ f. the slope of the tangent to the curve at a point
Graphing Tutorial

The best way to learn to read graphs is to construct a few of them and begin to interpret them. This tutorial is far from exhaustive. However, it will show you how to construct a graph from values that are listed in a table. The graph will be interpreted. Then, the problems below will help you apply different concepts relevant to reading graphs.

Suppose you are operating a lemonade stand during the hottest part of the summer and you vary the price of lemonade from day to day to see how changes in the price affect the amount of lemonade purchases. The data from your experiment on changing the price are shown in the table below.

<table>
<thead>
<tr>
<th>Price per Cup ($)</th>
<th>Quantity Demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50</td>
<td>0</td>
</tr>
<tr>
<td>2.00</td>
<td>3</td>
</tr>
<tr>
<td>1.50</td>
<td>5</td>
</tr>
<tr>
<td>1.00</td>
<td>8</td>
</tr>
<tr>
<td>0.50</td>
<td>12</td>
</tr>
</tbody>
</table>

Each of these pairs of price and quantity demanded values can be translated into a point on a graph. Then the points can be connected to form a curve. In this case, the curve that is formed is called a demand curve because it reflects the quantity demanded of lemonade at different prices. You will learn more about demand curves in Chapter 3. The curve constructed from the table is shown below, with the price measured along the vertical axis and the quantity demanded measured along the horizontal axis.

Each of the points shown in the table is labeled with a letter in the graph. Point a in the graph corresponds to a
price of $2.50 and 0 cups of lemonade purchased. Points b, c, d, and e correspond to the other pairs of values listed in the table. What can be said about the slope of this curve? Clearly, the slope is negative because the curve is downward sloping. That is, as price decreases, the quantity demanded increases. For every decrease in value of the variable measured on the vertical axis, there is an increase in the value of the variable measured along the horizontal axis. Furthermore, the slope of this curve is not constant. Look at what happens as we decrease the price by $.50 from point to point along the curve. The quantity demanded increases by 3 cups, then 2 cups, then 3 cups, then 4 cups.

By working through the problems that follow, you will improve your ability to interpret graphs.

**Problems**

1. Using the example in the graphing tutorial, compute the slope of the curve between the following prices:

   a. From a price equal to $2 to a price equal to $1.50

   b. From $1.50 to $1.00

   c. From $1.00 to $.50

   d. What happens to the value of the slope over this range of prices? How does this influence the shape of the curve?
2. Consider the graph shown below and explain how the slope changes along the graph by drawing tangent lines at various points along the curve.

3. Explain the changes that occur in the slope along this curve from the origin to point A, then from point A to point B.
Answers to Questions for the Appendix

Key Terms Quiz

a. 2  
d. 1  
b. 5  
e. 3  
c. 6  
f. 4

Problems

1. a. The slope between prices of $2 and $1.50 is \( (2 - 1.50)/(3 - 5) = -0.5/2 = -0.25 \)
   
b. The slope between prices of $1.50 and $1 is \( (1.5 - 1)/(5 - 8) = -0.5/3 = -0.167 \)
   
c. The slope between prices of $1 and $.5 is \( (1 - .5)/(8 - 12) = -0.5/4 = -0.125 \)
   
d. The value of the slope is negative but increasing over this range, meaning that the slope becomes less
   negative and the curve is becoming flatter.

2. Starting at the point on the curve closest to the origin, the slope is positive but decreasing until it becomes
   zero at the peak of the curve beyond which the slope becomes increasingly negative.

3. From the origin to point A, the slope is positive and increases as the curve gets steeper. From point A to
   point B, the slope is positive and decreases as the curve becomes flatter.
Homework Questions

True-False Questions — If a statement is false, explain why.

1. The circular flow model shows that flows of goods and services in product markets and flows of resources in resource markets are matched by flows of money. (T/F)

2. It is impossible to completely deplete renewable resources. (T/F)

3. Macroeconomics is the branch of economics that examines individual economic behavior. (T/F)

4. Labor, land, capital, and entrepreneurship are the resources supplied by households to firms in markets for resources. (T/F)

5. Positive economics attempts to determine questions of fact regarding economic relationships. (T/F)

Multiple-Choice Questions

1. As long as human wants can be regarded as insatiable,
   a. renewable resources will be poorly managed
   b. scarcity will continue to be a problem for human societies
   c. some resources will be nonrenewable
   d. consumer sovereignty will fail to result in the correct combination of goods being produced
   e. people will fail to make the resources available to them last

2. Which of the following statements is not related to microeconomics?
   a. Ben Bernanke, the Chairman of the Federal Reserve, believes that unemployment is too high.
   b. General Motors has reported record losses for the last three months
   c. Cisco reports record profits based on new sales of wireless routers to consumers.
   d. Jo Wilson purchased an air compressor today at Sears for $129.99.
   e. Five retail shops in Yellow Springs, Ohio have closed in the last three months.

3. Ethanol used to fuel automobiles is an example of a(n)
   a. nonrenewable resource used as a substitute for a renewable resource
   b. insatiable want
   c. renewable resource used as a substitute for a nonrenewable resource
   d. abundant resource used as a substitute for a scarce resource
   e. scarce resource used as a substitute for an abundant resource

4. All of the following are characteristics of the circular flow model except
   a. goods and services are sold in product markets
   b. labor and other resources are sold in resource markets
   c. money payments to resources equal money payments for goods and services
   d. the banking systems receives deposits from households and lends the money
   e. that the model is abstract
5. Which of the following statements is a positive statement?
   a. Government should take action to reduce the unemployment rate below 5 percent.
   b. The number of oil drilling rigs has increased as oil prices have risen.
   c. Illegal immigration should be ended to improve the employment opportunities for American workers.
   d. The price of life-saving medical care should be set by the government.
   e. Consumers ought to continue to spend at high levels in spite of their wealth losses in the stock market.

**Discussion Questions/Problems**

1. In the space below sketch the circular flow model and explain the flows between the product and resource markets. Label your sketch carefully.

2. Are we running out of natural resources? How does your answer differ depending on whether the resource is renewable or nonrenewable?