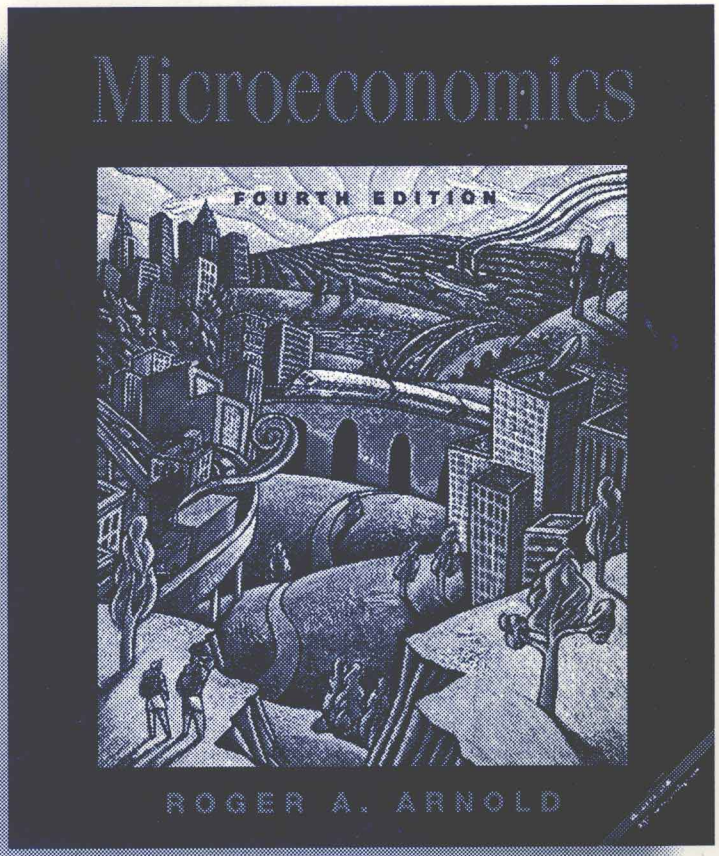
STUDY GUIDE

Microeconomics

FOURTH EDITION



ROGER A. ARNOLD

Prepared by THOMAS L. WYRICK

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California State University, San Marcos

Prepared by

THOMAS L. WYRICK

Southwest Missouri State University

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Chapter 1
What Economics Is About

Introduction and Purpose

Consider the following points as you read Chapter 1 in the text.

What is economics? No single definition captures the interests and concerns of all economists, but most definitions stress the problem of **scarcity** and the attempts people make to achieve their personal objectives in the presence of that scarcity. People trying to make the most of what they have, you might say. *All societies, regardless of their political or economic system, are subject to scarcity.* Consequently economics is useful for understanding human behavior in all nations. Although economists typically discuss the behavior of people in the marketplace—buyers, sellers, workers, employers—the use of economic theory to understand the *non*market activities of people is becoming increasingly common. The traditional domain of economics is divided between **microeconomics**, the economics of individual action, and **macroeconomics**, the economics of an entire nation. Both micro and macro economic analysis examine the factors that influence people's decisions, but macroeconomics requires the additional step of "adding up" the effects of individual behavior to see what happens on a larger scale as a result of the decisions of many individuals.

Economists take as a given that men and women make the choices that provide themselves with the greatest advantage. This is the key to understanding **the economic way of thinking**. Economists refer to the satisfaction that people receive from consuming some good or service as **utility**. It may help you understand economic analysis to keep in mind that economic decisions are made by balancing two factors: the cost of a given option and the utility (benefit) associated with that option. A utility-maximizing individual will act whenever the utility from a proposed course of action exceeds the cost of taking it. The difference between benefits and costs is the net gain to the individual—the *incentive* to act. Later chapters examine personal incentives in different settings.

That is not to say that people are totally self-centered or unwilling to lift a finger to help others. People give gifts and perform charitable acts every day, and these activities are all the proof one needs that narrow self-interest does not rule our every action. But charitable feelings do not prevent self-interest from being *one* of the things that motivate people. We predict that an increase in the benefits or a decrease in the costs of doing something makes it more likely that even a charitable person will do it, **ceteris paribus**. Other things being equal, higher wages give people more incentive to work, whether the individual is self-interested or charitable. Even a very charitable person may work longer and harder for a higher wage, since that would give them more income they could donate to a worthy cause. Even though economists predict that workers will react to a higher wage by working longer hours, they do not deny that other considerations—personal

health, family responsibilities, laziness—can also affect people's decisions. Economists believe that incentives are important, but not everything.

As noted earlier, **scarcity** is the fundamental fact of life which requires people in all times and places to make economic choices. Scarcity is a situation in which the desires of people exceed the goods made freely available by nature. Saying that goods are scarce does not imply that a *shortage* of goods exists; you will learn in a later chapter that shortages are created by specific policies, whereas scarcity (as defined in the previous sentence) is always present because we have **limited resources** available for producing the things we desire. Because goods are scarce, in order to satisfy one desire it is always necessary to forego the opportunity of satisfying others. These **lost opportunities** are the **costs** that economists have in mind when they discuss the negative aspects of a proposed action or decision. Since it is impossible to have everything one desires, common sense (and economic theory) suggests that individuals will give up lower-priority objectives in order to attain higher-priority ones. It would be nice to have a new car every year, but few people are willing to give up their summer vacations and work every Saturday in order to have one. It would be nice to have many things, but "there is no such thing as a free lunch." Economists **predict** that people will buy items that provide the most utility for the smallest sacrifice, or cost.

Such predictions are the subject of **positive economics**. In conducting a positive analysis, economists do not concern themselves with the desirability or undesirability of individual behavior, or with the character of the person whose behavior is being studied. Instead, they concentrate on the circumstances and motivations which explain behavior. Many economic **theories** are statements about the effect of certain conditions (called "variables") on human behavior. Theories are **abstract**: they leave out many of the real-world details that have only a minor influence on the individual's decision in order to concentrate on the relationship between a few important variables and the ultimate decision which the individual makes. For example, economists predict that when the price of a good rises people will buy less of it. Theories become widely accepted when they have been shown to be effective predictors of behavior in actual experience.

In fact, that is how the body of economic theory contained in your textbook was developed. An economist interested in some particular phenomenon uses economic analysis to develop a **hypothesis** (such as: "Higher wages will cause people to work more hours") that can be **tested** by examining the behavior of ordinary people. If we observe behavior contrary to the hypothesis, that is a good sign that the original theory was faulty or that the economist did not take into account enough factors when developing the hypothesis. The text mentions two logical errors that sometimes cause economic theories to be unsuccessful: the belief that **association implies causation** and the **fallacy of composition**. If actual experience is consistent with the hypothesis, that is a sign that the theory may be a useful one that can be applied to similar situations. Since the theory may fail in its next application we can never say that a theory has been proven—but every successful application of it makes us a little more confident when applying the theory in the future. Theorize about economic relationships, state a hypothesis, then test the hypothesis; that is the scientific method in economics. Testing predictions with actual experience is a productive way to reject false and ultimately worthless theories, and to build on those that show the most promise.

Key Concepts in this Chapter

After reading Chapter 1 in the text, answer the following questions.

1. The happiness or satisfaction individuals receive from consuming goods and services is called _____.

2. Economics is the science of how people deal with (select one:) shortages / ~~scarcity~~.

3. scarcity makes it necessary to choose between alternatives.

4. The highest valued opportunity or alternative forfeited as a result of making a particular choice is the opportunity cost of the choice.

5. Focusing on a limited number of factors to explain an event is called abstract.

6. A theory / dilemma / fallacy is a statement that uses critical variables to explain or predict real-world phenomena.

7. According to Milton Friedman, theories should be judged successful (or not) on the basis of their ability to _____ behavior or events.

8. Positive / normative economics is value-free economic analysis. Positive / normative economics includes the personal goals and values of the analyst.

9. A good made available by nature in sufficient quantity to satisfy all wants is a _____ good.

10. Maximus / Ceteris paribus is a Latin phrase that means other things remain constant.

11. The benefit / cost of a $300 TV set is forfeited the opportunity to buy $300 worth of other goods.

12. According to a study discussed in the text, people whose cars have seatbelts probably drive faster / slower than people whose cars do not have seatbelts. Thus seatbelts may result in a higher / lower accident rate.

13. True or false? _____ A theory should be rejected if there is an inconsistency between its assumptions and real-world conditions.

14. True or false? ____ A theory that is consistent with actual experience has been proved correct.

15. A theory / hypothesis / model is an if-then statement about the relationship between variables which can be subjected to tests.

16. "Whatever is good for General Motors is good for America." This statement commits which fallacy of logic? The fallacy of exposition / composition / explanation .

17. Macro / Micro -economics is the study of economics that deals with the entire economy.

18. Macro / Micro -economics is the study of economics that deals with individual consumers, sellers, and workers.

19. If event A occurs immediately before event B, then A caused or contributed to B. This statement assumes that association implies _____.

20. The analysis of "what would have been" is critical to understanding _____ _____.

21. The economic conditions that influence decisions or behavior in an economic theory are referred to as _____.

22. In economics, *additional* or incremental units of something are referred to as _____ units.

23. Increasing the tax rate on income will cause the economy to grow more slowly than before." This statement reflects positive / normative economic analysis.

24. In markets, goods are rationed to people according to price / muscles / beauty / skin color.

Problems and Exercises

After reading Chapter 1 in the text you should be able to work the following problems.

1. Clint and Cindi plan to travel from Detroit to Charleston. Clint has a job paying $10 an hour; Cindi has a job paying $20 an hour. Which of the two have a lower opportunity cost of traveling? _____. Ceteris paribus, who do you predict will be more likely to prefer driving to Charleston? _____ Flying? _____.

2. Examine Exhibit 1-1. Do people react to incentives as economists predict? _____
   Explain your conclusion: _____
   _____
   _____

Exhibit 1-1

Wage	Hours of TV per day
$ 3.50	7.2
8.50	4.6
18.50	3.5
50.00	1.5

3. In Exhibit 1-2, indicate with a check mark (X) which of the following are *costs of attending college*. Recall that costs result from forfeited (or foregone) opportunities, so you should identify opportunities that are lost as a result of going to college that would not be incurred if one did not attend college. For example, paying tuition requires one gives up money that could have been spent on other goods.

Exhibit 1-2

X	Tuition and other fees	$_____
___	Room and board	_____
___	Textbooks and other class materials	_____
___	Extra income that you could have earned by working full time rather than attending college	_____
___	The cost of clothing	_____
	TOTAL	$_____

4. Estimate the annual cost associated with each X item in **question 3** and write it in the space provided. Multiply the annual total by four (4) to estimate the total cost of your college education: $_____.

5. If colleges would stop charging tuition, it wouldn't cost anything to go to college so everyone could afford to go." Explain why the analysis contained in this statement is incorrect: _____

_____

_____

6. Assume that initially high school graduates earn $800 per month, but then economic conditions improve and wages for h.s. grads rise to $900. Explain how this affects the cost of attending college, and what impact this should have on college attendance._____

_____

_____

7. If you stopped studying at this instant, what would you do instead? _____
   What do economists call the opportunities you forego to study?_____

8. Adam Smith, the father of modern economics, wrote more than 200 years ago about the way children were treated in America. "The labor of each child," he said, "before it can leave their house, is computed to be worth a hundred pounds clear gain to them" (the child's parents).

   Do you feel that children provide a "clear gain" (income in excess of expenses) to parents today? _____ Comparing the situation 200 years ago with that today, what has happened to the economic incentive to have children?_____

9. Indicate whether these topics fall within the domain of *macro*economics or *micro*economics.

	macro *or* micro		macro *or* micro
• the price of gasoline	*micro*	• the general price level	
• the unemployment rate		• the wages of teachers	
• national output		• total car production	

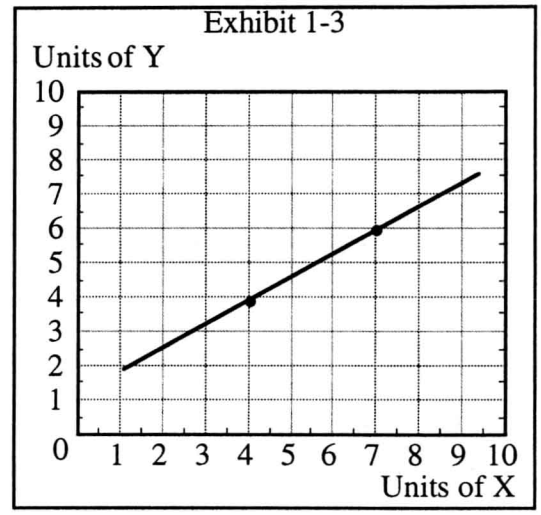
10. In 1974 the interstate highway speed limit was reduced from 70 to 55 mph to improve gas mileage and reduce the nation's demand for petroleum.

    a. If the new speed limit increased gas mileage from 15 to 18 mpg, how much gasoline would be saved on a 250-mile trip? _____ gal. At the 1974 price of 60¢ per gallon, about $_____ worth of gasoline was conserved by the lower speed limit.

    b. How much extra time is required to make the 250-mi. trip at the lower speed limit? _____ If a car has 2 passengers and each values their time at $4 an hour, what did the lower speed limit cost in terms of time lost? $_____

    c. Compare the benefits in (a) with the costs in (b). Was the value of gasoline saved as high as the value of the additional travel time? _____

11. Compute the slope of the curve drawn in Exhibit 1-3. The slope equals ____.



In Exhibit 1-3, units of (select one:) X / Y are measured along the graph's *vertical* axis.

The relationship between X and Y is a positive / negative / inverse one.

12. According to the text, during the American Revolution British troops wore red uniforms to increase the opportunity cost to soldiers from deserting. Explain why red uniforms had this effect: _____

_____

Self Test

Multiple choice questions.

1. Economics is:
   a. the science of human relationships in an economic setting.
   b. the science of business and prices.
   c. the science of scarcity.
   d. the science of goods and services.

   Answer: C.

2. Scarcity exists:
   a. in only poor countries of the world.
   b. in all countries of the world.
   c. only when society does not employ all its resources in an efficient way.
   d. only when society produces too many frivolous or silly goods.

   Answer: b.

3. Which of the following statements is true?
   a. Both a millionaire and a poor person must deal with scarcity.
   b. People would have to make choices even if scarcity did not exist.
   c. Scarcity is a relatively new problem in the world's history; it has not always existed.

d. It is likely that one day scarcity will no longer exist.

Answer: a.

4. Which of the following statements is true?
   a. Coca-Cola is a good for everyone, even someone who has an allergy to Coca-Cola?
   b. If you pay someone to take X off your hands, then it is likely that you consider X a bad.
   c. It is possible, but not likely, that someone can obtain both utility and disutility from a bad.
   d. If there is more of good A than people want at zero price, then good A is an economic good.

   Answer: b.

5. Kristin Taylor had a safety inspection performed on her car last week and it passed with flying colors. How is this likely to affect her future driving behavior, compared to a situation in which cars did not get safety inspections at all?
   a. She will probably drive faster, and the probability of having an accident is reduced.
   b. She will probably drive slower, and the probability of having an accident is reduced.
   c. She will probably drive faster, and the probability of having an accident is increased.
   d. She will probably drive slower, and the probability of having an accident is increased.

   Answer: c.

6. Frank is 19 years old and is an actor in a soap opera, "One Life to Ruin." He earns $100,000 a year. Cassandra is also 19 years old and works in a local clothing store. She earns $6 an hour. Which of the two persons is more likely to attend college and for what reason?
   a. Cassandra, because she is smarter.
   b. Frank, because he has higher opportunity costs of attending college than Cassandra.
   c. Cassandra, because she has lower opportunity costs of attending college than Frank.
   d. Frank, because he earns a higher income than Cassandra.

   Answer: c.

7. A theory:
   a. is a simplified abstract representation of the real world.
   b. incorporates critical factors or variables.
   c. is an accurate and complete description of reality.
   d. a and b

   Answer: d.

8. Which of the following is the best example of a hypothesis?
   a. If a person eats too many fatty foods, then his cholesterol level will rise.
   b. If it is 12 noon in New York City, it is 9 a.m. in Los Angeles.
   c. The daytime temperature is often over 100 degrees in Phoenix in July.
   d. If someone yells "fire" in a crowded theater and everyone runs to the exit, you will be worse off than had everyone walked but you.

   Answer: a.

9. Evidence can:
   a. prove a theory but never disprove it.
   b. reject (disprove) a theory but never prove it.
   c. both prove and reject (disprove) a theory (although not at the same time).
   d. change the assumptions of the theory to fit the facts.

   Answer: b.

10. If an economist tests his or her theory and finds that it predicts accurately, he or she would likely say:
   a. the evidence fails to reject the theory.
   b. the theory has been proved correct.
   c. the theory is true.
   d. the theory is better than alternative theories.

   Answer: a.

11. When an economist says that association is not causation, he or she means that:
   a. event X and Y can be related in time (say one occurs a few minutes before the other) without X causing Y or Y causing X.
   b. if X occurs close in time to Y it must be that either X is the cause of Y or Y is the cause of X.
   c. what is good for one person is good for all persons.
   d. what is good for one person is usually bad for all persons.

   Answer: a.

12. Ceteris paribus means:
   a. the correct relationship specified.
   b. there are too many variables considered in this theory.
   c. all other things held constant.
   d. assuming that people are rational human beings.

   Answer: c.

13. Which of the following is an example of a *positive* statement?
   a. If you drop a quarter off the top of the Sears building in Chicago, it will fall to the ground.
   b. The minimum wage should be raised to $6 an hour.
   c. There is too much crime in the United States; something should be done about it.
   d. People should learn to get along with each other.

   Answer: a.

14. Which of the following topics is a microeconomics topic?
   a. the study of what influences the nation's unemployment rate
   b. the study of how changes in the nation's money supply affect the nation's output
   c. the study of prices in the automobile market
   d. the study of what affects the inflation rate

   Answer: b.

15. "Productive resources" include which of the following?

a. land, labor, money, management
b. land, labor, money, entrepreneurship
c. land, labor, capital, entrepreneurship
d. land, labor, natural resources, entrepreneurship

Answer: C .

True-False

16. A good is anything from which individuals receive utility. (T) F

17. If there is no explicit charge for a good, it is not a scarce good. T (F)

18. Scarcity implies that choices will be made. (T) F

19. The higher a person's opportunity cost of time, the more likely a person will stand in a long line to buy a ticket to a concert or some other event, ceteris paribus. T (F)

? 20. According to Milton Friedman, theories are better judged by their assumptions than by their predictions. T (F)

21. As economists use the term, a "good" is a tangible item that you can see and touch (rather than an intangible service). T (F)

Fill in the blank

22. If one person talks louder than others at a cocktail party, he or she is heard better. If everyone talks louder at a cocktail party, though, not everyone is heard better. This is an illustration of the fallacy of composition.

23. Imo believes that a event which occurs first must be the cause of an event that occurs later. Imo believes that association of causation.

24. If calorie intake causes weight gain and there are numerous things that cause weight loss, then the more cookies you eat, the more weight you will gain, ceteris paribus.

25. Macroeconomics is the branch of economics that deals with highly aggregated markets or the entire economy.

26. If the evidence is consistent with a theory, economists do not say the theory has been proved correct. Instead, they say that the evidence fails to reject the theory.

27. One more unit of something is the marginal unit.

28. A good that is used to produce other goods, yet is not a natural resource, is called a _____ good.

29. The person who organizes production in a firm and is responsible for recognizing new business opportunities is an _____.

Answers

Key Concepts in this Chapter

1. utility **2.** scarcity **3.** Scarcity **4.** opportunity **5.** abstraction **6.** theory **7.** predict **8.** Positive, Normative **9.** free (non-economic) **10.** Ceteris paribus **11.** cost **12.** faster, higher **13.** false (assumptions are never totally realistic) **14.** false (a theory is never proved correct; it is just tentatively accepted) **15.** hypothesis **16.** composition **17.** macroeconomics **18.** microeconomics **19.** causation **20.** opportunity cost (what would have been is the lost opportunity) **21.** variables **22.** marginal **23.** positive **24.** price

Problems and Exercises

1. Clint, Clint, Cindi (her opportunity cost of spending time during travel is greater) **2.** Yes The opportunity cost is higher for people with higher wages, so they watch less TV. **3.** X's: tuition, texts, extra income (Outlays on room and board are not a lost opportunity because these dollars would have been spent on room and board anyway; thus no opportunity to save these dollars has been lost.) **4.** (These are estimates:) tuition $2500, texts $1000, income $13,000 = $16,500x4 = $66,000 **5.** The biggest cost of college is the income lost while not working. **6.** The cost of attending college rises and fewer people are likely to attend. **7.** Watch old sit-coms on cable TV and eat potato chips. Opportunity cost. **8.** No. Costs exceed earnings, so the economic incentive to have children is less **9.** gas price (micro), unemployment rate (macro), national output (macro), general price level (macro), teacher wages (micro), car production (micro) **10.** a. Gas consumption falls from 16.7 gal. to 13.9, for a saving of 2.8 gal. At 60¢ that is worth $1.68. b. At the lower speed limit the passengers would be in the car an additional 0.974 hours each x 2 x $4 = $7.79 c. The time was about 4.6 times as valuable as the gasoline saved. **11.** slope=2(rise)/3(run) = 0.667, Y, positive (or direct). **12.** The chief cost of deserting was the possibility of being captured and shot, and red uniforms made it easier to capture a deserter; Two possibilities: 1) American troops were more loyal to the cause and less likely to desert.

Self Test

1. c **2.** b **3.** a **4.** b **5.** c **6.** c **7.** d **8.** a **9.** b **10.** a **11.** a **12.** c **13.** a **14.** c **15.** c
16. T **17.** F **18.** T **19.** F **20.** F **21.** F
22. fallacy of composition **23.** association is causation **24.** ceteris paribus **25.** Macroeconomics
26. fails to reject **27.** marginal **28.** capital ("capital" is a tangible good, not money) **29.** entrepreneur

Chapter 2
Fundamentals of Economic Thinking: Within the Production Possibilities Frontier (PPF) Framework

Introduction and Purpose

Consider the following points as you read Chapter 2 in the text.

What makes economics a difficult subject for many people is the complexity of our $7 trillion economy and the conflicting explanations which analysts offer for every twist and turn it makes. With so many things going on at the same time, some students surrender to the feeling that economic theory is just too abstract and confusing to learn.

That is largely a case of the forest being obscured by the trees. To understand economics you don't have to design an economy or examine every specific transaction. As you gain experience in economic thinking you should gradually come to see that *economists use the same few economic principles, or models, in many different areas of inquiry*. There is not one economic model for the housing market, a different one for the labor market and still another for the beer market; the same few principles apply in each of these (and other) situations.

This helps explain why a few students in your class will be able to earn high grades with little apparent effort. Those who excel may not be more intelligent overall or study harder than those who struggle to earn C's. But those who find economics "easy" will have discovered the few important principles and learned how to apply them in a variety of different situations. Before discovering this secret, economics is a mass of theories and definitions too large to manage; afterward, it is a few manageable principles that become easier to manipulate with practice.

As mentioned earlier, economic theories are usually formulated in general terms so they can be used in a variety of different applications. Rather than talk about the specific methods used to assemble steel and various materials into automobiles, economists discuss the **production** process in more general terms: production is the transformation of economic resources (land, labor, capital and entrepreneurship) into goods and services. **Productive efficiently** exists if as much output as possible is produced from a given quantity of resources. When resources are used inefficiently, it is possible to increase production of some goods without decreasing the production of others.

Chapter 2 emphasizes one of the best-known economics frameworks: the **production possibilities frontier** (**PPF**). Although the text discusses the PPF model in the context of a nation's production possibilities, it has equal relevance to an individual or group. You have limited time, so you have to trade off some activities for others. The slope of your personal PPF frontier shows the rate at which you can trade off one thing for another—the opportunity cost of taking an

action. In addition to moves along a PPF curve, your PPF can be shifted outward by the use of time-saving technology. The PPF model is a versatile one that can be used to illustrate and tie together several related concepts: the limits of production, opportunity cost, **increasing production costs**, **economic growth**, **unemployed resources**, and **efficiency**.

The PPF model is simple to learn, so the greatest danger is that you will read the material quickly without reflecting on the lessons it teaches. Your challenge is to become familiar enough with the model so that you think about it when the evening news has a segment on the economics of medical care or problems in the Russian economy. When you learn to interpret those news stories with the use of the PPF model or with other economics principles discussed in the text, that is a sign you're learning the economic way of thinking.

As you read about the PPF model's applications for an entire nation, ask yourself how the PPF model describes your own economic situation. Whenever possible, try to think of a specific example from your own experience that illustrates the point under consideration. Practice and familiarity underlie excellence in any field of endeavor, and economics is no exception.

Review of Concepts from Earlier Chapters

Prior to reading Chapter 2, match statements at left with the appropriate concept at right.

__1. Additional or incremental.	a. scarcity
__2. Satisfaction from consuming goods.	b. slope
__3. Assuming that other things remain unchanged.	c. marginal
__4. When desires exceed the ability to produce goods.	d. ceteris paribus
__5. The value of what is forfeited as a result of taking an action.	e. utility
__6. Something that gives consumers happiness.	f. theory
__7. Vertical distance on a curve divided by horizontal distance.	g. good
__8. An abstract representation of the real world.	h. cost
__9. Human work or thought used in production	i. land
__10. Natural resources.	j. labor

Key Concepts in this Chapter

After reading Chapter 2 in the text, answer the following questions.

1. A (select one:) PPF / cost / demand curve describes combinations of goods that an economy can produce using all of its _____ and existing technology.

2. If scarcity did not exist you would / would not be able to have all of the goods that you want.

3. If you have more study time available, the PPF showing attainable grades in economics and sociology is unchanged / shifts down and to the left / shifts outward to the right .

4. Because resources are _____ in particular uses, the production possibilities frontier will be curved. A PPF curve that is bowed outward illustrates the law of increasing _____ _____.

5. When resources are equally well suited to producing different goods, the PPF will be a straight line / curved line that bows outward from the origin / curved line bowed inward .