

# STUDY GUIDE

*to accompany*



*foundations of*  
**MICROECONOMICS**

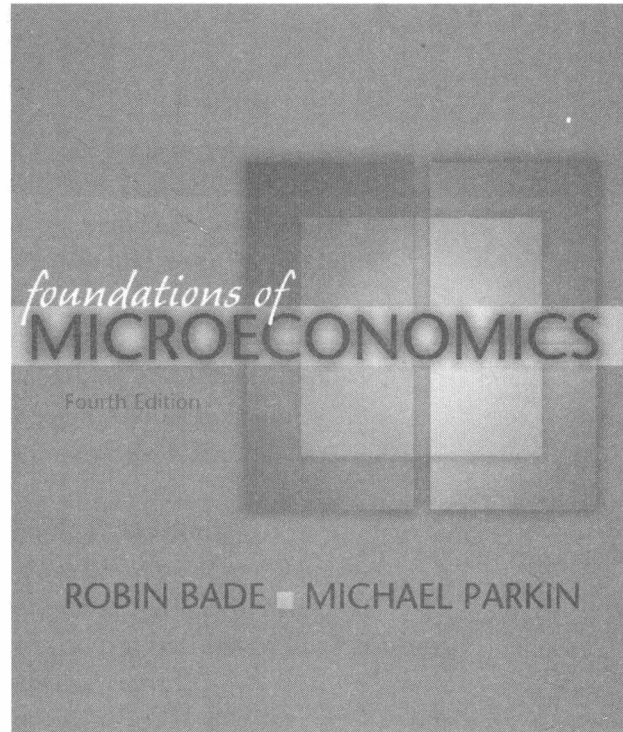
Fourth Edition

ROBIN BADE ■ MICHAEL PARKIN

MARK RUSH

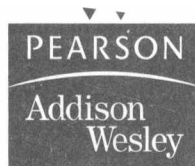
# STUDY GUIDE

*to accompany*



## MARK RUSH

*University of Florida*



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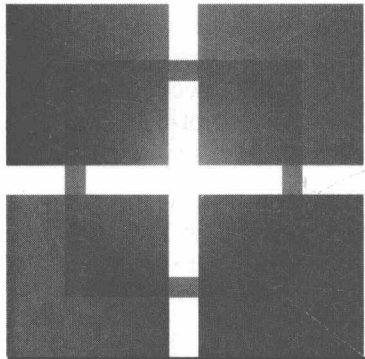
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# Your Complete Learning Package

## YOUR FOUNDATIONS LEARNING TOOLS

### ■ The Complete Package

Your *Foundations of Microeconomics* package consists of:

- Textbook
- Study Guide
- MyEconLab Access Kit

MyEconLab is a powerful and tightly integrated homework and tutorial system that puts you in control of your own learning. MyEconLab includes

- Practice Tests that let you test your understanding and identify where you need to concentrate your studying
- A personalized Study Plan that evaluates your test results and provides further practice
- Tutorial instruction that will guide you through the areas you have difficulty with
- eText—the entire textbook in Flash format with animated figures accompanied by audio explanations prepared by us and with hyperlinks to all the other components of the Web site
- Economics in the News updated daily during the school year
- Online “Office Hours”—ask a question via e-mail, and one of us will respond within 24 hours!
- Economic links—links to sites that keep you up to date with what’s going on in the economy and that enable you to work end-of-chapter Web Exercises

Each new textbook arrives with a MyEconLab Student Access Card that unlocks protected areas of the Web site.

### ■ Checklist and Checkpoints: The Glue That Holds Your Tools Together

Each chapter of your textbook opens with a Chapter Checklist that tells you what you’ll be able to do when you’ve completed the chapter. The number of tasks varies from two to five and most often is three or four. Begin by reviewing this list thoughtfully and get a good sense of what you are about to learn.

Each part of a chapter in the textbook, Study Guide, and MyEconLab Web site is linked directly to a Checklist item to enable you to know exactly what you’re studying and how it will enable you to accomplish your learning objective.



Each part of a chapter in the textbook ends with a Checkpoint—a page that offers you a Practice Problem to test your understanding of the key ideas of the part, a worked and illustrated solution to the Practice Problem, and a further (parallel) exercise. The Checkpoints enable you to review material when it's fresh in your mind—the most effective and productive time to do so. The Checkpoints guide you through the material in a step-by-step approach that takes the guesswork out of learning. The Study Guide reinforces each Checkpoint by providing Additional Practice Problems. Use these if you're still not sure you understand the material or if you want to review before an exam.

The self-test questions in the Study Guide, the Study Plan Exercises on the MyEconLab Web site, and the chapter resources on the MyEconLab Web site are organized by Checkpoint so that you can maintain your focus as you work through the material.

### ■ Practice Makes Perfect

As you study, distinguish between *practice* and *self-test*. Practice is part of the learning process, learning by doing. Self-test is a check. It shows you where you need to go back and reinforce your understanding, and it helps you build confidence in your knowledge of the material.

The Checkpoint Practice Problems and Exercises, the end-of-chapter Exercises, and the Checkpoint Exercises in MyEconLab are designed for practice. The self-test questions in the Study Guide, the pre- and post-tests, and Study Plan Exercises in MyEconLab are designed to reveal your gaps in understanding and to target your final examination of the material.

### ■ Learn Your Learning Style

It is unlikely that you'll need to use all the tools that we've created all of the time. Try to discover how you learn best. Then exploit what you discover.

If you learn best by reading with a marker or pencil in your hand, you'll use the textbook and Study Guide more often than the other items. If you learn best by seeing the action, you'll often use the eText and MyEconLab tutorials. If you learn best by hearing, you'll use the eText audio explanations of the action in key figures. If you learn best by participating and acting, you'll often use the Study Plan Exercises.

### ■ Tell Us What Works for You

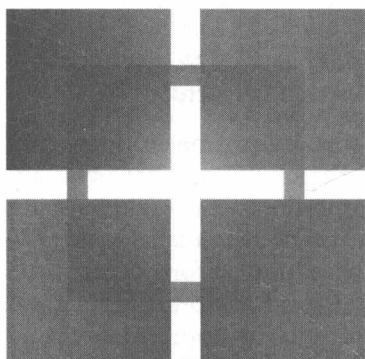
Please tell us the tools that you find most helpful. And tell us what you think we can improve. You can email us at [robin@econ100.com](mailto:robin@econ100.com) or [michael.parkin@uwo.ca](mailto:michael.parkin@uwo.ca), or use the Office Hours in your MyEconLab Web site.

Robin Bade

Michael Parkin

Ontario, Canada

December, 2007



# Your Course and Your Study Guide

## SUGGESTIONS FOR CLASS

### ■ Introduction

My experience has taught me that what students want most from a study guide is help in mastering course material in order to do well on examinations. This Study Guide has been created to respond specifically to that demand. Using this Study Guide alone, however, is not enough to guarantee that you will earn an A or do well in your course. In order to help you overcome the problems and difficulties that most students encounter, I have some general advice on how to study, as well as some specific advice on how best to use this Study Guide.

Economics requires a different style of thinking than what you may encounter in other courses. Economists make extensive use of assumptions to break down complex problems into simple, analytically manageable parts. This analytical style, while ultimately not more demanding than the styles of thinking in other disciplines, feels unfamiliar to most students and requires practice. As a result, it is not as easy to do well in economics on the basis of your raw intelligence and high school knowledge as it is in many other courses. Many students who come to my office are frustrated and puzzled by the fact that they are getting A's and B's in their other courses but only a C or worse in economics. They have not recognized that economics is different and requires practice. In order to avoid a frustrating visit to your instructor after your first test, I suggest you do the following.

### ■ Don't rely solely on your high school economics.

If you took high school economics, you have seen the material on supply and demand which your instructor will lecture on in the first few weeks. Don't be lulled into feeling that the course will be easy. Your high school knowledge of economic concepts will be very useful, but it will not be enough to guarantee high scores on exams. Your college or university instructors will demand much more detailed knowledge of concepts and ask you to apply them in new circumstances.

### ■ Keep up with the course material on a weekly basis.

Skim or read the appropriate chapter in the textbook before your instructor lectures on it. In this initial reading, don't worry about details or arguments you can't quite follow — try to get a general understanding of the basic concepts and issues. You may be amazed at how your instructor's ability to teach improves when you come to class prepared. After the lecture, return to the book and read the material more thoroughly and completely. As soon as your instructor has finished covering a chapter, complete the corresponding Study Guide chapter. Avoid cramming the day before or even just the week before an exam. Because economics requires practice, cramming is an almost certain recipe for failure.

### ■ **Keep a good set of lecture notes.**

Good lecture notes are vital for focusing your studying. Your instructor will only lecture on a subset of topics from the textbook. The topics your instructor covers in a lecture should usually be given priority when studying. Also give priority to studying the figures and graphs covered in the lecture.

Instructors differ in their emphasis on lecture notes and the textbook, so ask early on in the course which is more important in reviewing for exams — lecture notes or the textbook. If your instructor answers that both are important, then ask the following, typical economic question: which will be more beneficial — spending an extra hour re-reading your lecture notes or an extra hour re-reading the textbook? This question assumes that you have read each textbook chapter twice (once before lecture for a general understanding, and then later for a thorough understanding); that you have prepared a good set of lecture notes; and that you have worked through all of the problems in the appropriate Study Guide chapters. By applying this style of analysis to the problem of efficiently allocating your study time, you are already beginning to think like an economist!

### ■ **Use your instructor and/or teaching assistants for help.**

When you have questions or problems with course material, come to the office to ask questions. Remember, you are paying for your education and instructors are there to help you learn. Don't be shy. The personal contact that comes from one-on-one tutoring is professionally gratifying for instructors as well as (hopefully) beneficial for you.

### ■ **Form a study group.**

A very useful way to motivate your studying and to learn economics is to discuss the course material and problems with other students. Explaining the answer to a question out loud is a very effective way of discovering how well you understand the question. When you answer a question only in your head, you often skip steps in the chain of reasoning without realizing it. When you are forced to explain your reasoning aloud, gaps and mistakes quickly appear, and you (with your fellow group members) can quickly correct your reasoning. The Exercises at the end of each textbook chapter are extremely good study group material. You might also get together after having worked the Study Guide problems, but before looking at the answers, and help each other solve unsolved problems.

### ■ **Work old exams.**

One of the most effective ways of studying is to work through exams your instructor has given in previous years. Old exams give you a feel for the style of question your instructor might ask, and give you the opportunity to get used to time pressure if you force yourself to do the exam in the allotted time. Studying from old exams is not cheating, as long as you have obtained a copy of the exam legally. Some institutions keep old exams in the library, others in the department. If there is a class web page, check there—many instructors now post old exams on their class web pages. Students who have previously taken the course are usually a good source as well. Remember, though, that old exams are a useful study aid only if you use them to understand the reasoning behind each question. If you simply memorize answers in the hopes that your instructor will repeat the identical question, you are likely to fail. From year to year, instructors routinely change the questions or change the numerical values for similar questions.

### ■ **Use All Your Tools**

The authors of your book, Robin Bade and Michael Parkin, have created a rich array of learning tools that they describe in the preceding section, "Your Complete Learning Package." Make sure that you read this section because it makes sense to use *all* your tools!

## USING THE STUDY GUIDE

You should only attempt to complete a chapter in the Study Guide after you have read the corresponding textbook chapter and listened to your instructor lecture on the material. Each Study Guide chapter contains the following sections.

### Chapter Checklist

This first section is a short summary of the key material. It is designed to focus you quickly and precisely on the core material that you must master. It is an excellent study aid for the night before an exam. Think of it as crib notes that will serve as a final check of the key concepts you have studied.

### Additional Practice Problems

In each checkpoint in the textbook is at least one and generally more than one practice problem. These problems are extremely valuable because they help you grasp what you have just studied. In the Study Guide are additional Practice Problems. These Practice Problems either extend the Practice Problem in the text or cover another important topic from the Checkpoint. Although the answer is given to the additional Practice Problem, try to solve it on your own before reading the answer.

Following the additional Practice Problem is the Self Test section of the Study Guide. This section has fill in the blank, true or false, multiple choice, complete the graph, and short answer and numeric questions. The questions are designed to give you practice and to test skills and techniques you must master to do well on exams. Before I describe the parts of the Self Test section, here are some general tips that apply to all parts.

First, use a pencil to write your answers in the Study Guide so you have neat, complete pages from which to study and recall how you answered a question when the test approaches. Draw graphs wherever they are applicable. Some questions will ask explicitly for graphs; many others will not but will require a chain of reasoning that involves shifts

of curves on a graph. Always draw the graph. Don't try to work through the reasoning in your head — you are much more likely to make mistakes that way. Whenever you draw a graph, even in the margins of the Study Guide, label the axes. You might think that you can keep the labels in your head, but you will be confronting many different graphs with many different variables on the axes. Also, be sure to understand what the axes are measuring. After finishing Chapter 4, some students think that the vertical axis always shows the price. That belief is simply not so. Hence you must be careful with the axes. In other words, avoid confusion and label. As an added incentive, remember that on exams where graphs are required, instructors often will deduct points for unlabelled axes.

Do the Self Test questions as if they were real exam questions, which means do them without looking at the answers. This is the single most important tip I can give you about effectively using the Study Guide to improve your exam performance. Struggling for the answers to questions that you find difficult is one of the most effective ways to learn. The adage — no pain, no gain — applies well to studying. You will learn the most from right answers you had to struggle for and from your wrong answers and mistakes. Only after you have attempted all the questions should you look at the answers. When you finally do check the answers, be sure to understand where you went wrong and why the right answer is correct.

### Fill in the Blanks

This section covers the material in the checkpoint and has blanks for you to complete. Often suggested phrases are given but sometimes there are no hints—in that case you are on your own! Well, not really, because the answers are given at the end of each Study Guide chapter. This section also can help you review for a test because, once completed, they serve as a *very* brief statement of the important points within the important points within the checkpoint.



**True or False**

Next are true or false questions. Some instructors use true or false questions on exams or quizzes, so these questions might prove very valuable. The answers to the questions are given at the end of the chapter. The answer has a page reference to the textbook. If you missed the question or did not completely understand the answer, definitely turn to the textbook and study the topic so that you will not miss similar questions on your exams.

**Multiple Choice**

Many instructors use multiple choice questions on exams, so pay particular attention to these questions. Similar to the true or false questions, the answers are given at the end of the Study Guide chapter and each answer references the relevant page in the text. If you had any difficulty with a question, use this page reference to look up the topic and then study it to remove this potential weakness.

**Complete the Graph**

The complete the graph questions allow you to practice using one of economists' major tools, graphs. If you will have essay questions on your exams, it is an extremely safe bet that you will be expected to use graphs on at least some of the questions. This section is designed to ensure that you are well prepared to handle these questions. Use the graph in the Study Guide to answer the questions. Although the answer is given at the end of the Study Guide chapter, do *not* look at the answer before you attempt to solve the problem. It is much too easy to deceive yourself into thinking you understand the answer when you simply look at the question and then read the answer. Involve yourself in the material by answering the question and then looking at the answer. If you cannot answer the question or if you got the answer wrong, the Study Guide again has a reference to the relevant page number in the text. Use the text and study the material!

**Short Answer and Numeric Questions**

The last set of questions are short answer and

numeric questions. Short answer and numeric questions are classic exam questions, so pay attention to these questions. Approach them similarly to how you approach all the other questions: Answer them before you look at the answers in the back of the Study Guide. These questions are also excellent for use in a study group. If you and several friends are studying for an exam, you can use these questions to quiz your understanding. If you have disagreements about the correct answers, once again there are page references to the text so that you can settle these disagreements and be sure that everyone has a solid grasp of the point!

**FINAL COMMENTS**

This Study Guide combines the efforts of many talented individuals. The author of the Chapter in Perspective and many of the additional Practice Problem and answer is Tom Meyer, from Rochester Community and Technical College. It was a pleasure to work with Tom; I always looked forward to his emails and the resulting conversations.

For the multiple choice questions, we assembled a team of truly outstanding teachers:

- Seemi Ahmad, Dutchess Community College
- Susan Bartlett, University of South Florida
- Jack Chambless, Valencia Community College
- Paul Harris, Camden County Community College
- William Mosher, Assumption College
- Terry Sutton, Southeast Missouri State University

I added a few multiple choice questions and wrote the fill in the blank, true or false, complete the graph, and short answer and numeric questions. I also served as an editor to assemble the material into the book before you.

The Study Guide and other supplements were checked for accuracy by a team of in-

structors. For a previous edition, the team included:

- Carol Conrad, Cerro Coso Community College
- Marie Duggan, Keene State University
- Steven Hickerson, Mankato State University
- Douglas Kinnear, Colorado State University
- Tony Lima, California State University, at Eastbay (Tony, I believe you were one of my instructors when I was an undergraduate—thanks for helping excite me about economics!)
- Michael Milligan, Front Range Community College
- Barbara Ross-Pfeiffer, Kapiolani Community College

Jeannie Shearer-Gillmore, University of Western Ontario, checked every word, every sentence, every paragraph, and every page of the first edition of this book and many of the words, sentences, paragraphs, and pages of the third edition. She made a huge number of corrections and comments. The easiest way to distinguish her work and mine is to determine if there is an error in a passage. If there is, it's my work; if there is not, it's her work.

Students who have used this book in earlier editions also have found errors that I did not catch. I think we owe these students a special thanks for their conscientious work and generous initiative to report the errors:

- Lisa Salazar-Rich, at Cal Poly Pomona
- Professor Tom McCaleb's class at Florida State University

Robin Bade and Michael Parkin, the authors of your book, also need thanks. Not only have they written such a superior book that it was easy to be enthusiastic about writing the Study Guide to accompany it, both Robin and Michael played a very hands-on role in creating this Study Guide. They corrected errors and made suggestions that vastly improved the Study Guide.

I want to thank my family: Susan, Tommy, Bobby, and Katie, who, respectively: allowed me to work all hours on this book; helped me master the intricacies of FTPing computer files; let me postpone working on our trains with him until after the book was concluded; and would run into my typing room to share her new discoveries. Thanks a lot!

Finally, I want to thank Butterscotch, Mik, Lucky, (and the late, beloved Snowball) and Pearl, who sometimes sat on my lap and sometimes sat next to the computer in a box peering out the window (and occasionally meowed) while I typed.

We (well, all of us except the cats) have tried to make the Study Guide as helpful and useful as possible. Undoubtedly I have made some mistakes; mistakes that you may see. If you find any, I, and following generations of students, would be grateful if you could point them out to me. At the end of my class at the University of Florida, when I ask my students for their advice, I point out to them that this advice won't help them at all because they have just completed the class. But comments they make will influence how future students are taught. Thus just as they owe a debt of gratitude for the comments and suggestions that I received from students before them, so too will students after them owe them an (unpaid and unpayable) debt. If you have questions, suggestions, or simply comments, let me know. You can reach me via e-mail at [MARK.RUSH@CBA.UFL.EDU](mailto:MARK.RUSH@CBA.UFL.EDU). Your input probably won't benefit you directly, but it will benefit following generations. And if you give me permission, I will note your name and school in following editions so that any younger siblings (or, years down the road, maybe even your children!) will see your name and offer up thanks.

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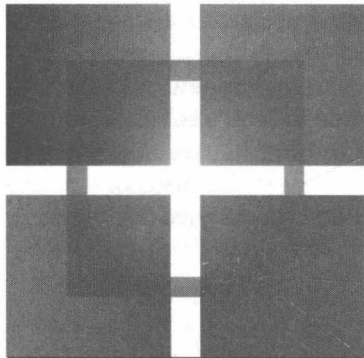
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## Getting Started

# Chapter

# 1

### CHAPTER CHECKLIST

Chapter 1 defines economics, discusses the three major questions of *what*, *how*, and *for whom*, covers the five core economic ideas that shape how economists think about issues, defines the differences between microeconomics and macroeconomics, and examines methods used by economists to study the economic world.

#### **1 Define economics and explain the kinds of questions that economist try to answer.**

Economic questions exist because of scarcity, the point that wants exceed the ability of resources to satisfy them. Economics is the social science that studies the choices that individuals, businesses, government, and entire societies make as they cope with scarcity and the incentives that influence these choices. Economics studies how choices wind up determining: *what* goods and services get produced?; *how* are goods and services produced?; and *for whom* are goods and services produced? Economics also studies when choices made in someone's self-interest also serve the social interest. For instance, are the self-interested choices made about globalization and international outsourcing, use of tropical rain forests, and social security also promote the social interest about these issues?

#### **2 Explain the core ideas that define the economic way of thinking.**

The five ideas that are the core of the economic approach: people make rational choices by comparing benefits and costs; cost is what you must give up to get something; benefit is what you gain when you get something and is measured by what you are willing to give up to get it; a rational choice is made on the margin; and choices respond to incentives. A rational choice uses the available resources to most effectively satisfy the wants of the person making the choice. The opportunity cost of an activity is the highest-valued alternative forgone. The benefit of a good or service is the gain or pleasure it brings and is measured by what someone is willing to give up to get the good or service. Making choices on the margin means comparing all the relevant alternatives systematically and incrementally to determine which is the best choice. A choice on the margin is one that adjusts a plan. The marginal cost is the cost of a one-unit increase in an activity; the marginal benefit is the gain from a one-unit increase in an activity. Rational choices compare the marginal benefit of an activity to its marginal cost. Microeconomics studies choices made by individuals and businesses. Macroeconomics studies the national economy and global economy. Statements about "what is" are positive statements; statements about "what should be" are normative statements. Economists are interested in positive statements about cause and effect but determining causality can be difficult because usually many things change simultaneously. So economists often use the idea of *ceteris paribus*, a Latin term that means "other things equal" and is used to sort out the effect of individual influence. Correlation is the tendency for the values of two variables to move together in a predictable way. Economics can be used by individuals, business, and governments as a policy tool to help them make better decisions.

## CHECKPOINT 1.1

### ■ Define economics and explain the kinds of questions that economists try to answer.

#### Quick Review

- *Self-interest* The choices that people make that they think are the best for them.
- *Social interest* The choices that are best for society as a whole.

#### Additional Practice Problems 1.1

1. Which of the following headlines deals with *what*, *how*, and *for whom* questions?
  - a. A new government program is designed to provide high-quality school lunches for children from poorer families.
  - b. Intel researchers discover a new chip-making technology.
  - c. Regis Hairstyling sets a record for hair-stylings in month of July
2. Which of the following headlines concern social interest and self interest?
  - a. A new government program is designed to provide high-quality school lunches for children from poorer families.
  - b. Intel researchers discover a new chip-making technology.
  - c. Regis Hairstyling sets a record for hair-stylings in month of July.

#### Solutions to Additional Practice Problems 1.1

- 1a. "More lunches" is a *what* question and "for children from poorer families" is a *for whom* question.
  - 1b. "New chip-making technology" is a *how* question because it deals with how computer chips will be manufactured.
  - 1c. "Record for hairstylings" is a *what* question because it notes that a record number of hairstylings have taken place in July.
- 2a. The decision to implement a new government program is a decision that is most likely made in the social interest. The self-interest of the government bureaucrat who

made the decision might also be involved, particularly if the bureaucrat also will help manage the program.

- 2b. Intel's decision to research new chip-making technology is made in Intel's self-interest.
- 2c. Regis's decision to offer hairstylings is made in its self-interest as are the decisions of the people who had their hair styled by Regis.

### ■ Self Test 1.1

#### Fill in the blanks

Economic questions arise because \_\_\_\_ (human wants; resources) exceed the \_\_\_\_ (human wants; resources) available to satisfy them. Faced with \_\_\_\_, people must make choices. Choices that are the best for the person who makes them are choices made in \_\_\_\_ (self-interest; social interest). Choices that are best for everyone as a whole are choices made in \_\_\_\_ (self-interest; social interest).

#### True or false

1. Faced with scarcity, we must make choices.
2. The question of *what* refers to what production method should a firm use?
3. The answers to the *what*, *how* and *for whom* questions depend on the interactions of the choices people, businesses, and governments make.
4. If Sam buys a pizza because she is hungry, her choice is made in the social interest.
5. Because everyone is a member of society, all choices made in self-interest are also in the social interest.

#### Multiple choice

1. The characteristic from which all economic problems arise is
  - a. political decisions.
  - b. providing a minimal standard of living for every person.
  - c. how to make a profit.
  - d. hunger.
  - e. scarcity.

2. Scarcity results from the fact that
  - a. people's wants exceed the resources available to satisfy them.
  - b. not all goals are desirable.
  - c. we cannot answer the major economic questions.
  - d. choices made in self-interest are not always in the social interest.
  - e. the population keeps growing.
3. To economists, scarcity means that
  - a. limited wants cannot be satisfied by the unlimited resources.
  - b. a person looking for work is not able to find work.
  - c. the number of people without jobs rises when economic times are bad.
  - d. there can never be answers to the *what, how* or *for whom* questions.
  - e. unlimited wants cannot be satisfied by the limited resources.
4. The question "Should we produce video tapes or DVD discs?" is an example of a \_\_\_\_ question.
  - a. what
  - b. how
  - c. for whom
  - d. where
  - e. why
5. The question "Should we produce houses using bricks or wood?" is an example of a \_\_\_\_ question.
  - a. what
  - b. how
  - c. for whom
  - d. where
  - e. why
6. The question "Should economics majors or sociology majors earn more after they graduate?" is an example of a \_\_\_\_ question.
  - a. what
  - b. how
  - c. for whom
  - d. where
  - e. why
7. If a decision is made and it is the best choice for society, the decision is said to be
  - a. a valid economic choice.
  - b. made in self-interest.
  - c. made in social interest.
  - d. consistent with scarcity.
  - e. a want-maximizing choice.

### Short answer and numeric questions

1. Will there ever come a time without scarcity?
2. If there was no scarcity, would there be a need for economics?
3. What are the three major questions answered by people's economic choices?
4. Why is the distinction between choices made in self-interest and choices made in social interest important?

## CHECKPOINT 1.2

### ■ Explain the core ideas that define the economic way of thinking.

#### Quick Review

- *Opportunity cost* The opportunity cost of something is the best thing you must give up to get it.
- *Marginal cost* The opportunity cost that arises from a one-unit increase in an activity.
- *Marginal benefit* The benefit that arises from a one-unit increase in an activity.
- *Rational choice* A choice that uses the available resources to most effectively satisfy the wants of the person making the choice.
- *Positive statement* A positive statement tells what is currently understood about the way the world operates. We can test a positive statement.
- *Normative statement* A normative statement tells what ought to be. It depends on values. We cannot test a normative statement.

**Practice Problems 1.2**

1. What are the opportunity costs of using this *Study Guide*?
2. Kate usually plays tennis for two hours a week and her grade on each math test is usually 70 percent. Last week, after playing two hours of tennis, Kate thought long and hard about playing for another hour. She decided to play another hour of tennis and cut her study time by one additional hour. But the grade on last week's math test was 60 percent.
  - a. What was Kate's opportunity cost of the third hour of tennis?
  - b. Given that Kate made the decision to play the third hour of tennis, what can you conclude about the comparison of her marginal benefit and marginal cost of the second hour of tennis?
  - c. Was Kate's decision to play the third hour of tennis rational?
3. Classify each of the following statements as positive or normative:
  - a. There is too much poverty in the United States.
  - b. An increase in the gas tax will cut pollution.
  - c. Cuts to social security in the United States have been too deep.

**Solutions to Additional Practice Problems 1.2**

1. The opportunity cost is mainly the time spent using the *Study Guide* because that time could be devoted to other activities. The highest-valued activity forgone, be it studying for another class, or sleeping, or some other activity, which is forgone because of the time spent using the *Study Guide* is the opportunity cost. Once you have purchased this *Study Guide*, its price is *not* an opportunity cost of using the *Study Guide* because you have already paid the price. The price is, instead, a sunk cost.
- 2a. The opportunity cost of the third hour of tennis was the 10 percentage point drop on her math test grade because she cut her studying time by one hour to play an additional hour

of tennis. If Kate had not played tennis for the third hour, she would have studied and her grade would not have dropped.

- 2b. Kate chose to play the third hour of tennis, so the marginal benefit of the third hour of tennis was greater than the marginal cost of the third hour. If the marginal benefit of the third hour of tennis was less than the marginal cost of the third hour, Kate would have chosen to study rather than play tennis.
- 2c. Even though her grade fell, Kate's choice used the available time to most effectively satisfy her wants because the marginal benefit of the third hour of playing tennis exceeded the marginal cost of the third hour. This was a choice made in her self-interest.
- 3a. A normative statement because it depends on the speaker's values and cannot be tested.
- 3b. A positive statement because it can be tested by increasing the gas tax and then measuring the change in pollution.
- 3c. A normative statement because it depends on the speaker's values (someone else might propose still deeper cuts) and cannot be tested.

**Self Test 1.2****Fill in the blanks**

A \_\_\_ choice uses the available resources to most effectively satisfy the wants of the person making the choice. The opportunity cost of an activity is \_\_\_ (all of the activities forgone; the highest-valued alternative forgone). The benefit of an activity is measured by what you \_\_\_ (are willing to; must) give up. We make a rational choice to do an activity if the marginal benefit of the activity \_\_\_ the marginal cost. (Macroeconomics; Microeconomics) \_\_\_ is the study of the choices of individuals and businesses, the interaction of these choices, and the influences that governments exert on these classes. A statement that tells "what is" is a \_\_\_ (positive; normative) statement. A statement that tells "what ought to be" is a \_\_\_ (positive; normative) statement. The term



meaning “other things being equal” is \_\_\_\_ (*ce-teris paribus*; sunk cost).

### True or false

1. Instead of attending his microeconomics class for two hours, Jim can play a game of tennis or watch a movie. For Jim the opportunity cost of attending class is forgoing the game of tennis *and* watching the movie.
  2. Marginal cost is what you gain when you get one more unit of something.
  3. A rational choice involves comparing the marginal benefit of an action to its marginal cost.
  4. A change in marginal benefit or a change in marginal cost brings a change in the incentives that we face and leads us to change our actions.
  5. The subject of economics divides into two main parts, which are macroeconomics and microeconomics.
  6. The statement, “When more people volunteer in their communities, crime rates decrease” is a positive statement.
3. The cost of a one-unit increase in an activity
    - a. is the total one-unit cost.
    - b. is called the marginal cost.
    - c. decreases as you do more of the activity.
    - d. is called the marginal benefit/cost.
    - e. is called the sunk cost.

4. The marginal benefit of an activity is
  - i. the benefit from a one-unit increase in the activity.
  - ii. the benefit of a small, unimportant activity.
  - iii. measured by what the person is willing to give up to get one additional unit of the activity.
    - a. i only.
    - b. ii only.
    - c. iii only.
    - d. i and iii.
    - e. ii and iii.

5. If the marginal benefit of the next slice of pizza exceeds the marginal cost, you will
  - a. eat the slice of pizza.
  - b. not eat the slice of pizza.
  - c. be unable to choose between eating or not eating.
  - d. eat half the slice.
  - e. More information is needed about how much the marginal benefit exceeds the marginal cost to determine if you will or will not eat the slice.

### Multiple choice

1. Jamie has enough money to buy either a Mountain Dew, or a Pepsi, or a bag of chips. He chooses to buy the Mountain Dew. The opportunity cost of the Mountain Dew is
  - a. the Pepsi and the bag of chips.
  - b. the Pepsi or the bag of chips, whichever the highest-valued alternative forgone.
  - c. the Mountain Dew.
  - d. the Pepsi because it is a drink, as is the Mountain Dew.
  - e. zero because he enjoys the Mountain Dew.
2. The benefit of an activity is
  - a. purely objective and measured in dollars.
  - b. the gain or pleasure that it brings.
  - c. the value of its sunk cost.
  - d. measured by what must be given up to get one more unit of the activity.
  - e. not measurable on the margin.
6. When people make rational choices, they
  - a. behave selfishly.
  - b. do not consider their emotions.
  - c. weigh the costs and benefits of their options and act to satisfy their wants.
  - d. necessarily make a decision in the social interest.
  - e. are necessarily making the best decision.