

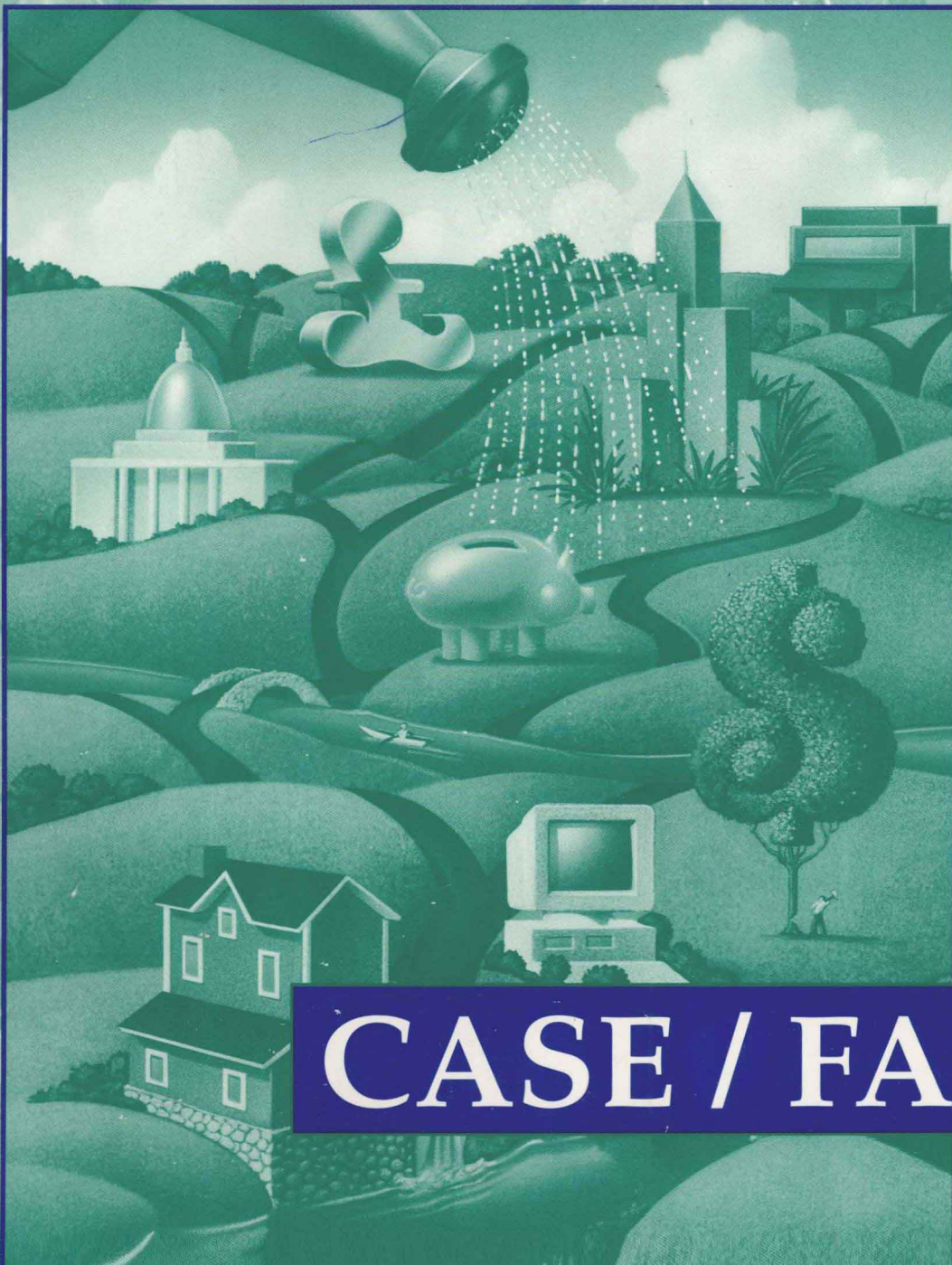
THOMAS H. BEVERIDGE

Graphing Pitfalls by STEVEN C. PITTS

STUDY GUIDE

FOURTH EDITION

PRINCIPLES OF MACROECONOMICS



CASE / FAIR

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Prentice Hall, Upper Saddle River, N.J. 07458

Production editor: Deneise Smith
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A Simon & Schuster Company
Upper Saddle River, New Jersey 07458

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Printed in the United States of America

10 9 8 7 6 5 4 3

ISBN 0-13-440868-3

Prentice-Hall International (UK) Limited, *London*
Prentice-Hall of Australia Pty. Limited, *Sydney*
Prentice-Hall Canada Inc., *Toronto*
Prentice-Hall Hispanoamericana, S.A., *Mexico*
Prentice-Hall of India Private Limited, *New Delhi*
Prentice-Hall of Japan, Inc., *Tokyo*
Simon & Schuster Asia Pte. Ltd., *Singapore*
Editora Prentice-Hall do Brasil, Ltda., *Rio de Janeiro*

Preface

This Study Guide has been developed to accompany *Principles of Macroeconomics* by Karl Case and Ray Fair. For students using Case and Fair's *Principles of Economics* (Chapters 1–39), the corresponding chapter numbers appear in parentheses. When referring to specific pages, the *Macroeconomics* reference is given first. I have devised this Guide to help you as you learn the concepts that are presented in the text; if used consistently throughout your course, this Guide can enable you to master the material in what is likely to be your first or second economics course. In addition, you'll be given opportunities to learn how to apply these concepts in a variety of situations. Most economists stress the need to develop competence in three major areas—the application of economic concepts to real-world situations, the interpretation of graphs, and the analysis of numerical problems. This Guide gives you practice in developing these important skills.

I believe that learning how to apply concepts creates a better and more long-lasting understanding of the material than mere memorization does. A reasonable goal for a non-economics major is to have absorbed enough insight to understand the economic content of an article in a publication like *The Wall Street Journal* or *Newsweek*.

STUDY GUIDE CONTENTS

The Study Guide contains one chapter for each chapter in the text. In general, each chapter has two large sections and an Answers and Solutions section.

- The *Objectives: Point by Point* section tells you what you should be able to accomplish after you've studied the material. It gives a summary of the chapter's important ideas. Each point is followed by some multiple choice questions, so that you can monitor how well you're understanding the concepts. You'll find some applications and examples, along with specific learning tips, graphing pointers and "helpful hints". Concepts that may prove particularly troublesome are covered here. Many of these "tricks" and memory aids have been suggested to me by students.
- The *Practice Test* section contains *Multiple Choice Questions* and *Application Questions*. These questions provide opportunities to practice the skills—graphing, numerical analysis, application of concepts—presented in the text. Go through this section thoroughly. These exercises give you an opportunity to try your hand at using economic principles and practices—often in fairly complex situations. Do the problem sets in the textbook, too. The *Multiple Choice Questions* are quite tough. Think of each multiple choice question as four true-false statements; don't just decide on the one "right" answer—determine why the other three options are wrong.
- The *Answers and Solutions* feature numerical and graphical solutions. Be aware, though, that real-world analysis is much more difficult to condense into such a simple form.

STUDY RECOMMENDATIONS

I recommend the following procedure for using this Guide to improve your effective understanding and use of the key principles and practices from the text.

1. Read the textbook chapter. There is no substitute for this step! Ideally, you should do this *before* the material is presented in class; in any case, *don't wait* until the day before your prof has scheduled a test! Use the *Point by Point* section of the Guide to identify the key issues and to test your knowledge.
2. Attend class regularly. In study after study, researchers have shown that regularity of class attendance is the single best predictor of performance.
3. Now that you're acquainted with the material, use the *Tips* to polish your understanding.
4. Complete the practice sections to test your ability to utilize key concepts. If you fail to complete an exercise correctly, even after having seen the answers, reread the text. If you're still stuck, ask your prof for clarification.
5. Before a scheduled examination, read the *Point By Point* sections for review.

With a conscientious and consistent use of this Guide, you can improve your understanding of economics and your ability to use and apply the concepts contained in this field of study. Learning can be interesting, as well as enjoyable.

This Guide has been written with the hope that, after the final exam, it will have helped you to gain a better understanding of economic issues and analysis and of the exciting and challenging concerns that we must address in our contemporary world.

Best wishes to you with your study of economics. I hope that you will find it to be a rewarding and worthwhile experience, and that this Guide will stimulate you in your endeavors.

Please send any comments or suggestions about this study guide to me, care of Economics Editor, Prentice Hall, 1 Lake Street, Upper Saddle River, NJ 07458.

Thomas Beveridge
Hillsborough, North Carolina
September, 1995

ACKNOWLEDGMENTS

I am grateful to the many students whose questions, through the years, have given me a better insight into the difficulties that arise when microeconomics is approached for the first time. The practice material included in this Guide springs largely from such “after class” discussions.

My gratitude is due to Steven Pitts (Houston Community College) who reviewed the entire Guide and contributed the Graphing Tutorial in Chapter 1. Although the majority of the Graphing Pointers are from my pen, Steven provided the initial suggestion for this feature and created numerous fine examples. Dennis Placone (Clemson University) and Charles Michaelopoulos (Virginia Polytechnic Institute and State University) reviewed Chapter 5. Finally, Mark Suchon (Houston Community College) deserves credit for providing a detailed list of typos and errors that had eluded all other eyes. The efforts of these reviewers and other correspondents have added much to the quality of the final product. Needless to say, any remaining *lapsi calami* are my responsibility.

This book is dedicated to Pam, to our son Andrew, (who believes that the marginal propensity to consume exceeds 1 and who did much to disrupt this Guide’s production), to my parents, and to the memory of Diana Fuerman Kongable, who would have enjoyed its attempts at humor.

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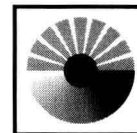
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THE SCOPE AND METHOD OF ECONOMICS

1

OBJECTIVES: POINT BY POINT

After completing this chapter, you should be able to accomplish the objectives listed below.



General Comment

Much of this chapter is devoted to setting out the framework of economics. Don't be overwhelmed and don't try to remember it all. Chapter 1 is simply a good place to gather together this information, which will be dealt with more fully as the chapters go by.

OBJECTIVE 1: Define economics.

Because of conditions imposed by nature and the choices previously made by society, resources are scarce. Economics studies how we choose to use these resources. In a sense, it is the "scientific study of choice." (page 1)

PRACTICE

1. Which one of the following best describes the study of economics? Economics studies
 - A. how businesses can make profits.
 - B. how the government controls the economy and how people earn a living.
 - C. how society uses its scarce resources to satisfy its unlimited desires.
 - D. the allocation of income among different sectors of the economy.

Answer: C. All of the options represent aspects of the study of economics. However, the most general statement is given in C—economics is the study of choice.

OBJECTIVE 2: State four reasons for studying economics.

A study of economics helps us to learn a way of thinking, to understand society, to understand national and global affairs, and to be an informed voter. Essential to the economic way of thinking is the concept of "opportunity cost"—choices involve forgoing some options. Accordingly, the applicability of the economic way of thinking is very extensive. (page 2)

OBJECTIVE 3: Distinguish between the concepts of opportunity cost, marginal cost, and sunk costs.

"Marginal" is a frequently used term in economics and it's important to understand it right away. "Marginal" means "additional" or "extra." "Marginal cost," then, means "additional cost."

Suppose you've bought a non-returnable, non-transferable ticket to the zoo for \$10. This is a *sunk cost*. You've paid whether or not you visit the zoo.

Let's change the example a little. Suppose you win a free admission to the zoo and decide to go this Saturday. The trip is not entirely free, however. You still have to bear some costs—travel, for example. There is certainly an additional cost (caused by the trip to the zoo). It is a *marginal cost*. Suppose you always buy lunch on Saturdays. The cost of lunch is not a marginal cost since you'd have had lunch whether or not you went to the zoo. In this sense, the cost of lunch is not contingent on the trip to the zoo—it's not an extra cost.

You choose to visit the zoo this Saturday. The *opportunity cost* is the value of the activity you would have undertaken instead—that is, the next most-preferred activity. Perhaps it might be playing a round of golf or studying for a big economics test. The opportunity cost of the trip to the zoo is the value you attach to that *one* activity you would otherwise have chosen. (page 2)

Opportunity Cost and Marginalism: The “big concept” in this chapter is *opportunity cost*, with *marginalism* and *efficiency* a close second and third. You'll see all three repeatedly throughout the textbook. For practice on the concept of opportunity cost, try Application question 5 below. For practice on marginal thinking, look at Application question 8.

TIP: Any time you make a choice, remember that an opportunity cost is involved.

PRACTICE

2. Your opportunity cost of attending college does not include
- ☒ A. the money you spend on meals while at college.
 - B. your tuition.
 - C. the money you spend on traveling between home and college.
 - D. the income you could have earned if you'd been employed full-time.
- Answer:** A. You would have bought food whether or not you were at college. All the other expenses occur solely because of attending college.
3. _____ may be defined as the extra cost associated with an action.
- ☒ A. Marginal cost.
 - B. Sunk cost.
 - C. Opportunity cost.
 - D. Action cost.
- Answer:** A. See p. 3.
4. Jean owns a French restaurant—*La Crème*. Simply to operate this week, he must pay rent, taxes, wages, food costs, and so on. This amounts to \$1,000 per week. This evening, a diner arrives and orders some Château Neuf du Pape wine to go with her meal. Jean has none and sends out to Wine World for a bottle. It costs \$20, and Jean charges his guest \$30. Which of the following is true for Jean?
- ☒ A. The marginal cost of the wine is \$20.
 - B. The marginal cost of the wine is \$30.
 - C. The sunk cost of the meal is \$1,020.
 - D. The sunk cost of the meal is \$1,030.
- Answer:** A. The sunk cost is the up-front expense of \$1,000. The extra cost that Jean bears for buying the wine is \$20.

OBJECTIVE 4: Define market efficiency in terms of profit opportunities.

The rapid elimination of profit opportunities is a signal that a market is operating efficiently. The stock market is a good example. If a stock is priced “too low,” there will be increased bidding and the price will be driven higher, eliminating the excess profits. At a farmers' market, Farmer Brown may charge 60¢ for a dozen eggs although the going rate is 50¢. She might make excess profits for a while, but this will not persist in an efficient market. (page 4)

OBJECTIVE 5: Make clear the difference between microeconomic and macroeconomic concerns.

Economics is split into two broad parts. *Microeconomics* focuses on the operation of individual markets and the choices of individual economic units (firms and households, for example). *Macroeconomics* deals with the broad economic variables such as national production, total consumer spending, and overall price movements. Economics also contains a number of subfields, such as international economics, labor economics, and industrial organization. (page 7)

PRACTICE

5. **Macroeconomics** approaches the study of economics from the viewpoint of
- A. individual consumers.
 - B. the government.
 - C. the entire economy.
 - D. the operation of specific markets.

Answer: C. Macroeconomics looks at the big picture—the entire economy.

6. **Microeconomics** approaches the study of economics from the viewpoint of
- A. the entire economy.
 - B. the government.
 - C. the operation of specific markets.
 - D. the stock market.

Answer: C. Microeconomics examines what is happening with individual economic units (households and firms) and how they interact in specific markets.

7. Which of the following is most appropriately a microeconomic issue?
- A. The study of the relationship between the unemployment rate and the inflation rate.
 - B. The forces determining the price level in an individual market.
 - C. The determination of total output in the economy.
 - D. The aggregate behavior of all decision-making units in the economy.

Answer: B. Microeconomics examines what is happening with individual economic units (households and firms) and how they interact in specific markets.

OBJECTIVE 6: Distinguish between positive and normative economics.

Economists classify issues as either positive or normative. Positive questions explore the behavior of the economy and its participants without judging whether the behavior is good or bad. *Positive economics* collects data that describe economic phenomena (descriptive economics) and constructs testable—cause-and-effect—theories to explain the phenomena (economic theory). *Normative economic questions* evaluate the results of behavior and explore whether the outcomes might be improved. (page 9)

PRACTICE

8. A difference between positive statements and normative statements is that
- A. positive statements are true by definition.
 - B. only positive statements are subject to empirical verification.
 - C. economists use positive statements and politicians use normative statements when discussing economic matters.
 - D. positive statements require value judgments.

Answer: B. A positive statement is not necessarily true by definition and can be disproved by empirical verification.

OBJECTIVE 7: Explain the value of the *ceteris paribus* assumption within the context of economic modeling.

Economists (and other scientists) construct models—formal statements of relationships between variables of interest—that simplify and abstract from reality. Graphs, words, or equations can be used to express a model. In testing the relationships between variables within a model it is convenient to assume *ceteris paribus*, that all other variables have been held constant. (page 12)

PRACTICE

9. “An increase in the price of shampoo will cause less shampoo to be demanded, *ceteris paribus*.” *Ceteris paribus* means that
- A. there is a negative relationship between the price and quantity demanded of shampoo.
 - B. the price of shampoo is the only factor that can affect the amount of shampoo demanded.
 - C. other factors may affect the amount of shampoo demanded but that these are assumed not to change in this analysis.
 - D. the price of shampoo is equal for all buyers.

Answer: C. The price of shampoo is equal for all buyers and there may be a negative relationship between the price and quantity of shampoo demanded, but *ceteris paribus* means that any other factors that may affect the amount of shampoo demanded are assumed to be constant.

OBJECTIVE 8: State the fallacies discussed in the text, give examples, and explain *why* such statements are fallacious.

Beware of false logic! The *fallacy of composition* involves the claim that what is good for one individual remains good when it happens for many. The fact that one farmer gains by having a bumper harvest *doesn't* mean that all farmers will gain if each has a bumper crop. The *post hoc, ergo propter hoc* fallacy occurs when we assume that an event that happens after another is caused by it. (page 13)

Two examples of the fallacy of composition: One person who stands up to see a good play at a football game derives a benefit—therefore all will benefit similarly if the entire crowd stands up. Running to the exit when there is a fire in a theater will increase your chances of survival—therefore, in a fire, we should all run for the exit.

PRACTICE

10. Which of the following is **not** an example of the fallacy of composition?
- A. Jane leaves work at 4:00 each day and avoids the rush-hour traffic at 5:00. Therefore, if businesses regularly closed at 4:00, all commuters would avoid the rush-hour traffic
 - B. John stands up so that he can see an exciting football play. Therefore, if the entire crowd stands up when there is an exciting play, all spectators will get a better view.
 - C. Since society benefits from the operation of efficient markets, IBM will benefit if markets become more efficient.
 - D. Since Mary on her own can escape from a burning building by running outside, individuals in a crowded movie theater are advised to run outside when there is a fire.

Answer: C. This example is arguing from the general to the specific. The fallacy of composition argues from the specific to the general.

OBJECTIVE 9: State and explain the four criteria used to assess the outcomes of economic policy.

Economists construct and test models as an aid to policy-making. Policy-makers generally judge proposals in terms of efficiency, equity (fairness), growth, and stability.
(page 15)

PRACTICE

11. The nation of Arboc claims to have achieved an equitable distribution of income among its citizens. On visiting Arboc, we would expect to find that
- A. each citizen receives the same amount of income.
 - B. Arbocali residents believe that the distribution of income is fair.
 - C. Arbocali residents believe that the distribution of income is equal.
 - D. each citizen receives the amount of income justified by the value of his or her contribution to production.

Answer: B. Whether or not the distribution of income is equitable depends on what Arbocali citizens believe to be fair.

Use the following information to answer the next two questions.

Nicola and Alexander each have some dollars and some apples. Nicola values a pound of apples at \$3 while Alexander values a pound of apples at \$1.

12. In which of the following cases has an economically efficient trade taken place?
- A. The market price of apples is \$3 per pound. Nicola sells apples to Alexander.
 - B. The market price of apples is \$1 per pound. Alexander sells apples to Nicola.
 - C. The market price of apples is \$2 per pound. Nicola sells apples to Alexander.
 - D. The market price of apples is \$2 per pound. Alexander sells apples to Nicola.

Answer: D. When the market price of apples is \$2 per pound and Alexander is the seller, he gains \$1. Nicola also gains because she receives goods she values at \$3 for a payment of only \$2.

13. In which of the following cases has an economically efficient trade not taken place?
- A. The market price of apples is \$3 per pound. Alexander sells apples to Nicola.
 - B. The market price of apples is \$1 per pound. Nicola sells apples to Alexander.
 - C. The market price of apples is \$4 per pound. Alexander sells apples to Nicola.
 - D. The market price of apples is \$2 per pound. Nicola sells apples to Alexander.

Answer: C. An efficient trade can occur only when some participant is better off and no participant is worse off. In Option A, Alexander gains and Nicola does not lose. In Option B, Nicola gains and Alexander does not lose. In Option D, Alexander and Nicola both gain. In Option C, Alexander gains but Nicola loses.

OBJECTIVE 10: Construct and interpret graphs.

Economic graphs depict the relationship between variables. A curve with a “rising” (positive) slope indicates that as one variable increases, so does the other. A curve with a “falling” (negative) slope indicates that as one variable increases in value, the other decreases in value. Slope is easily measured by “rise over run”—the extent of vertical change divided by the extent of horizontal change.
(page 19)

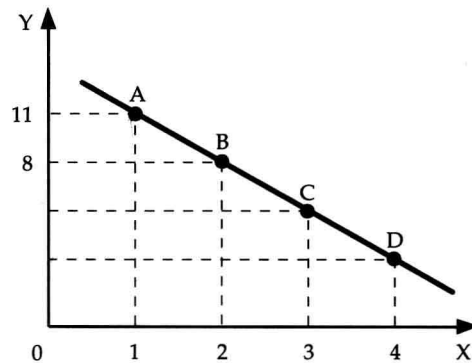
TIP: Economists almost automatically begin to scribble diagrams when asked to explain ideas, and you’ll need to learn how to use some of the tools of the trade. In economics, graphs often feature financial variables like “price,” “the interest rate,” or “income.” Usually the dependent variable is placed on the vertical axis and the independent variable on the horizontal axis. In graphing economic variables, however, it’s a pretty safe bet that the financial variable will go on the vertical axis every time. Application questions 9 and 10 and the Tutorial offer some graphing practice.

TIP: Make a point of examining the graphs you see accompanying economics-based articles in the daily newspaper or news magazines. It's quite common to find examples of deceptive graphs, especially when variables are being compared over time. A graph comparing, say, the difference between government spending and tax revenues can be quite misleading if the vertical axis does not start at zero.

Graphing Pointer: It is a natural tendency to shy away from graphs—they may seem threatening—but this is a mistake. To work with economic concepts, you must master all the tools in the economist's toolkit. Trying to avoid graphs is as unwise as trying to cut a piece of wood without a saw. See the Graphing Tutorial if you are uneasy.

PRACTICE

Use the diagram below to answer the next four questions.



14. In the diagram above, the slope of the line is

- A. positive and variable.
- B. positive and constant.
- C. negative and variable.
- D. negative and constant.

Answer: D. The diagram shows a straight line—straight lines have a constant slope. Visually, or by using the “rise over run” formula, the relationship is negative because, as one variable increases in value, the other decreases in value.

15. The slope of line between Point A and Point B is

- A. 3.
- B. $\frac{1}{3}$.
- C. -3.
- D. $-\frac{1}{3}$.

Answer: C. Use the “rise over run” formula. The rise is -3 (from 11 to 8) and the run is +1 (from 1 to 2).

16. At Point D, the value of Y is

- A. -3.
- B. 3.
- C. 5.
- D. 2.

Answer: D. As X “steps up” in value by 1, Y “steps down” in value by 3. At Point B, X has a value of 2 and Y has a value of 8. Moving to Point D, X increases by 2 and Y decreases by 6, from 8 to 2.

17. In the diagram above, when the line reaches the vertical (Y) axis the value of Y will be
- A. 3.
 - B. 8.
 - C. 11.
 - D. 14.

Answer: D As X “steps down” in value by 1, Y “steps up” in value by 3. At Point A, X has a value of 1 and Y has a value of 11. X decreases by 1 and Y increases by 3, from 11 to 14.

PRACTICE TEST



I. MULTIPLE CHOICE QUESTIONS.

Select the option that provides the single best answer.

- B 1. Local farmers reduce the price of their tomatoes at the farmers' market. The price of corn is 30¢ per ear. A passing economist notes that, *ceteris paribus* buyers will purchase more tomatoes. Which of the following is TRUE? The economist is
- A. implying that the price of tomatoes will fall even further.
 - B. assuming that the price of corn remains at 30¢ per ear.
 - C. assuming that tomatoes are of a better quality than before.
 - D. implying that corn is of a poorer quality than before.
- B 2. Which of the following is **not** given in the textbook as a criterion for judging the results of economic policy?
- A. Economic stability.
 - B. Employment.
 - C. Efficiency.
 - D. Equity.
- D 3. Economic growth may occur if
- A. more machines become available.
 - B. more workers become available.
 - C. workers become more efficient.
 - D. all of the above.
- A 4. Economics is the study of how
- A. scarce resources are used to satisfy unlimited wants.
 - B. we choose to use unlimited resources.
 - C. limitless resources are used to satisfy scarce wants.
 - D. society has no choices.
- B 5. The opportunity cost of Choice X can be defined as
- ~~A.~~ the cheapest alternative to Choice X.
 - B. the most highly-valued alternative to Choice X.
 - C. the price paid to obtain X.
 - D. the most highly-priced alternative to Choice X.
- D 6. In economics, efficiency means that
- A. income is distributed equally among all citizens.
 - ~~B.~~ there is a low level of inflation and full unemployment of economic resources.
 - C. total productivity is increasing at a constant and equal rate within each sector of the economy.
 - D. the economy is producing those goods and services that citizens desire and is doing so at the least possible cost.

- C 7. Which of the following statements is true?
- A. Microeconomics studies consumer behavior, while macroeconomics studies producer behavior.
 - B. Microeconomics studies producer behavior, while macroeconomics studies consumer behavior.
 - C. Microeconomics studies behavior of individual households and firms, while macroeconomics studies national aggregates.
 - D. Microeconomics studies inflation and opportunity costs, while macroeconomics studies unemployment and sunk costs.

- B 8. Which of the following statements is true?
- A. There is a positive relationship between the price of a product and the quantity demanded.
 - B. There is a positive relationship between the number of umbrellas bought and the amount of rainfall.
 - C. There is a negative relationship between height and weight.
 - D. There is a negative relationship between sales of ice cream and noon temperature.

- A 9. Oliver Sudden discovers that if he cuts the price of his tomatoes at the farmers' market, his sales revenue increases. Expecting similar results, all the other tomato sellers follow his example. They are guilty of committing
- A. the fallacy of composition.
 - B. the fallacy of *post hoc, ergo propter hoc*.
 - C. the fallacy of correlation.
 - D. *ceteris paribus*.

- D C ~~10~~ 10. The quantity of six-packs of Quite Lite beer demanded per week (Q_d) in Hometown is described by the following equation:

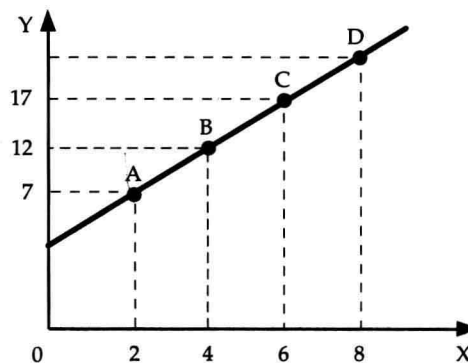
$$Q_d = 400 - 100P,$$

where P (in dollars) is the price of a six-pack. This equation predicts that

- A. 300 six-packs will be bought this week.
- ~~B~~ a \$1 rise in price will cause 100 more six-packs to be bought this week.
- C. 300 six-packs will be bought per \$100 this week.
- ~~D~~ a 50¢ rise in price will cause 50 fewer six-packs to be bought this week.

- D 11. The *ceteris paribus* assumption is used
- A. to make economic theory more realistic.
 - B. to make economic analysis more realistic.
 - C. to avoid the fallacy of composition.
 - D. to focus the analysis on the effect of a single factor.

Use the diagram below to answer the next four questions.



B 12. In the diagram above, the slope of the line is

- A. positive and variable.
- B. positive and constant.
- C. negative and variable.
- D. negative and constant.

A 13. The slope of line between Point A and Point B is

- A. $\frac{5}{2}$.
- B. $\frac{2}{5}$.
- C. $-\frac{2}{5}$.
- D. $-\frac{5}{2}$.

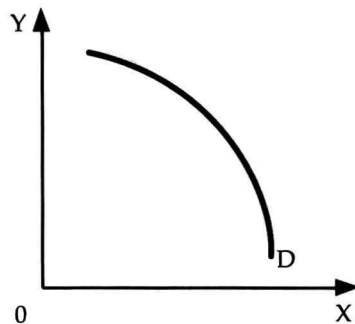
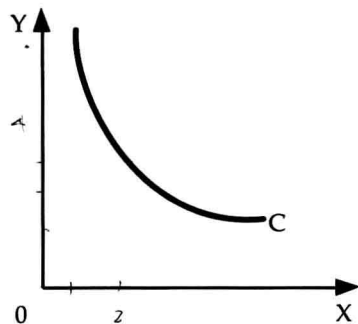
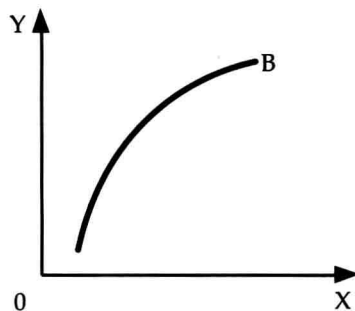
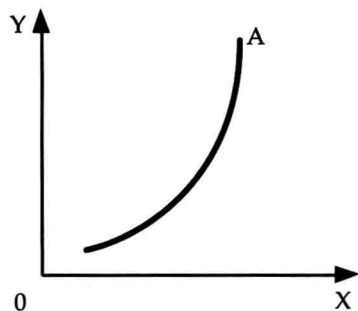
D 14. At Point D, the value of Y is

- A. 5.
- B. 8.
- C. 19.5.
- D. 22.

A ~~14~~ In the diagram above, when the line reaches the vertical (Y) axis the value of Y will be

- D
- A. 2.
 - B. $\frac{5}{2}$.
 - C. 7.
 - D. 12.

Use the diagrams below to answer the next four questions.



D ~~15~~ Of the four diagrams, which curve has a slope that is negative and decreasing?

- C
- A. A.
 - B. B.
 - C. C.
 - D. D.

A 17. Of the four diagrams, which curve has a slope that is positive and increasing?

- A. A.
- B. B.
- C. C.
- D. D.