

# Applied Basic Mathematics

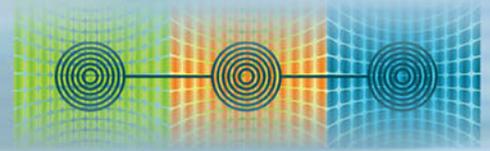


WILLIAM J. CLARK

ROBERT A. BRECHNER



SECOND EDITION



*Applied Basic*  
**MATHEMATICS**

**Second Edition**

William Clark  
*Harper College*

Robert Brechner  
*Miami Dade College*

**Addison-Wesley**

Boston • Columbus • Indianapolis • New York • San Francisco • Upper Saddle River  
Amsterdam • Cape Town • Dubai • London • Madrid • Milan • Munich • Paris • Montreal • Toronto  
Delhi • Mexico City • Sao Paulo • Sydney • Hong Kong • Seoul • Singapore • Taipei • Tokyo

*Editorial Director:* Christine Hoag  
*Editor in Chief:* Maureen O'Connor  
*Executive Content Editor:* Christine O'Brien  
*Assistant Editor:* Mary St. Thomas  
*Senior Managing Editor:* Karen Wernholm  
*Production Project Manager:* Beth Houston  
*Cover Designer:* Beth Paquin  
*Photo Researcher:* Beth Anderson  
*Digital Assets Manager:* Marianne Groth  
*Media Producer:* Nathaniel Koven  
*Software Development:* Kristina Evans and Mary Durnwald  
*Marketing Manager:* Adam Goldstein  
*Associate Marketing Manager:* Tracy Rabinowitz  
*Marketing Assistant:* Ashley Bryan  
*Senior Author Support/Technology Specialist:* Joe Vetere  
*Rights and Permissions Advisor:* Michael Joyce  
*Manufacturing Manager:* Evelyn Beaton  
*Senior Media Buyer:* Ginny Michaud  
*Text Design:* Leslie Haimes  
*Production Coordination, Composition, and Illustrations:* PreMediaGlobal

*Cover photo:* Tulips in the Keukenhof Gardens, the Netherlands; © Robert Brechner

*Photo credits:* p. 1: Hola Images/Getty Images; p. 12: Photodisc/Getty Images; p. 22, p. 403, p. 642: iStockphoto; p. 33, p. 82, p. 96, p. 135, p. 173, p. 180, p. 187, p. 303, p. 323, p. 331, p. 594: Robert Brechner; p. 48: Photonica/Amana America/Getty Images; p. 61, p. 295, p. 473, p. 528 (l): Beth Anderson; p. 64: Library of Congress Prints and Photographs Division [LC-USZ62-60242]; p. 70, p. 417: Stockbyte/Getty Images; p. 78, p. 168, p. 257, p. 287, p. 402, p. 635, p. 699: PhotoDisc/Getty Images; p. 99: Jet Propulsion Lab/NASA; p. 101: Photographer's Choice/Getty Images; p. 112: Paul Gilham/Getty Images; p. 161, p. 216, p. 350, p. 423, p. 496, p. 577: Digital Vision/Getty Images; p. 198: Comstock/Corbis; p. 207: Gavin Lawrence/Getty Images; p. 277: Jim McIsaac/Getty Images; p. 282: NASA; p. 296: George Bergeman; p. 320: Lisa F. Yount/Shutterstock; p. 322, p. 499: André Klaassen/Shutterstock; p. 339, p. 437, p. 441 (b), 452 (t) p. 457, p. 458 (t), p. 463, p. 475, p. 476, p. 625: Shutterstock; p. 343: Ilene MacDonald/Alamy; p. 349: Joe Raedle/Getty Images; p. 370: Moodboard/Corbis; p. 428: Jeff Haynes/AFP/Getty Images; p. 432: Image Source/Getty Images; p. 431: Eric Isseleé/Shutterstock; p. 441 (t), p. 452 (b): Blend Images/Getty Images; p. 442: Victoria Short/Shutterstock; p. 444: Jessie Eldora Robertson/Shutterstock; p. 458 (b): Cornstork/Thinkstock; p. 465: Lori Sparkia/Shutterstock; p. 479: Image Source/Getty Images; p. 480: The Granger Collection; p. 511: Thinkstock; p. 528 (r): Graphic Maps and World Atlas; p. 544: Fotocrisis/Shutterstock; p. 564: Chuck Choi/Arcaid/Corbis; p. 605: Gabriel Bouys/AFP/Getty Images; p. 645: Jonathan Daniel/Getty Images; p. 653: Dreamstime; p. 664: Interfoto/Alamy Images; p. 708: Johner Images/Getty Images

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and Addison-Wesley was aware of a trademark claim, the designations have been printed in initial caps or all caps.

### **Library of Congress Cataloging-in-Publication Data**

Clark, William, 1973–

Applied basic mathematics / William Clark, Robert Brechner. -- 2nd ed.

p. cm

Includes index.

ISBN-13: 978-0-321-69182-8 (student edition)

ISBN-10: 0-321-69182-2 (student edition)

ISBN-13: 978-0-321-69782-0 (instructor edition)

ISBN-10: 0-321-69782-0 (instructor edition)

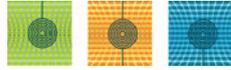
1. Mathematics--Textbooks. I. Brechner, Robert A. II. Title.

QA37.3.C58 2012

510--dc22

2010012736

Copyright © 2012, 2008 Pearson Education, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. Printed in the United States of America. For information on obtaining permission for use of material in this work, please submit a written request to Pearson Education, Inc., Rights and Contracts Department, 501 Boylston Street, Suite 900, Boston, MA 02116, fax your request to 617-671-3447, or e-mail at <http://www.pearsoned.com/legal/permissions.htm>.



DEDICATION

*To my mother, father, and grandmother.*

*Thank you for your love and support.*

—W. C.

*To my wife Shari Joy,  
every day, in every way,  
I love you more and more.*

—R.B.

*This page intentionally left blank*



# Contents

<b>Preface</b>	<b>ix</b>
<b>Supplements</b>	<b>xvii</b>
<b>Acknowledgments</b>	<b>xxi</b>
<b>About the Authors</b>	<b>xxv</b>

## **CHAPTER 1** Whole Numbers 1

<b>1.1</b>	Understanding the Basics of Whole Numbers	2
<b>1.2</b>	Adding Whole Numbers	13
<b>1.3</b>	Subtracting Whole Numbers	25
<b>1.4</b>	Multiplying Whole Numbers	35
<b>1.5</b>	Dividing Whole Numbers	50
<b>1.6</b>	Evaluating Exponential Expressions and Applying Order of Operations	63
<b>1.7</b>	Solving Application Problems	74
	10-Minute Chapter Review	84
	Numerical Facts of Life	93
	Chapter Review Exercises	93
	Assessment Test	98

## **CHAPTER 2** Fractions 101

<b>2.1</b>	Factors, Prime Factorizations, and Least Common Multiples	102
<b>2.2</b>	Introduction to Fractions and Mixed Numbers	117
<b>2.3</b>	Equivalent Fractions	130
<b>2.4</b>	Multiplying Fractions and Mixed Numbers	143
<b>2.5</b>	Dividing Fractions and Mixed Numbers	154
<b>2.6</b>	Adding Fractions and Mixed Numbers	162
<b>2.7</b>	Subtracting Fractions and Mixed Numbers	174
	10-Minute Chapter Review	189
	Numerical Facts of Life	198
	Chapter Review Exercises	198
	Assessment Test	204

## **CHAPTER 3** Decimals 207

<b>3.1</b>	Understanding Decimals	207
<b>3.2</b>	Adding and Subtracting Decimals	223
<b>3.3</b>	Multiplying Decimals	234
<b>3.4</b>	Dividing Decimals	246
<b>3.5</b>	Working with Fractions and Decimals	258
	10-Minute Chapter Review	270
	Numerical Facts of Life	277
	Chapter Review Exercises	278
	Assessment Test	284

## **CHAPTER 4** Ratio and Proportion 287

- 4.1 Understanding Ratios 288
- 4.2 Working with Rates and Units 303
- 4.3 Understanding and Solving Proportions 313
  - 10-Minute Chapter Review 333
  - Numerical Facts of Life 339
  - Chapter Review Exercises 340
  - Assessment Test 346

## **CHAPTER 5** Percents 349

- 5.1 Introduction to Percents 350
- 5.2 Solve Percent Problems Using Equations 364
- 5.3 Solve Percent Problems Using Proportions 378
- 5.4 Solve Percent Application Problems 392
  - 10-Minute Chapter Review 412
  - Numerical Facts of Life 417
  - Chapter Review Exercises 418
  - Assessment Test 421

## **CHAPTER 6** Measurement 423

- 6.1 The U.S. Customary System 424
- 6.2 Denominate Numbers 433
- 6.3 The Metric System 443
- 6.4 Converting between the U.S. System and the Metric System 454
- 6.5 Time and Temperature 459
  - 10-Minute Chapter Review 466
  - Numerical Facts of Life 473
  - Chapter Review Exercises 474
  - Assessment Test 477

## **CHAPTER 7** Geometry 479

- 7.1 Lines and Angles 480
- 7.2 Plane and Solid Geometric Figures 491
- 7.3 Perimeter and Circumference 509
- 7.4 Area 518
- 7.5 Square Roots and the Pythagorean Theorem 530
- 7.6 Volume 539
  - 10-Minute Chapter Review 552
  - Numerical Facts of Life 564
  - Chapter Review Exercises 565
  - Assessment Test 573

**CHAPTER 8** **Statistics and Data Presentation** 577

- 8.1 Data Presentation—Tables and Graphs 578
- 8.2 Mean, Median, Mode, and Range 605
  - 10-Minute Chapter Review 620
  - Numerical Facts of Life 625
  - Chapter Review Exercises 626
  - Assessment Test 631

**CHAPTER 9** **Signed Numbers** 635

- 9.1 Introduction to Signed Numbers 636
- 9.2 Adding Signed Numbers 647
- 9.3 Subtracting Signed Numbers 658
- 9.4 Multiplying and Dividing Signed Numbers 668
- 9.5 Signed Numbers and Order of Operations 681
  - 10-Minute Chapter Review 689
  - Numerical Facts of Life 694
  - Chapter Review Exercises 695
  - Assessment Test 697

**CHAPTER 10** **Introduction to Algebra** 699

- 10.1 Algebraic Expressions 700
- 10.2 Solving an Equation Using the Addition Property of Equality 713
- 10.3 Solving an Equation Using the Multiplication Property of Equality 721
- 10.4 Solving an Equation Using the Addition and Multiplication Properties 728
- 10.5 Solving Application Problems 738
  - 10-Minute Chapter Review 747
  - Numerical Facts of Life 753
  - Chapter Review Exercises 754
  - Assessment Test 755

**GLOSSARY** GL-1

**APPENDIX A** **Try-It Exercise Solutions** AP-1

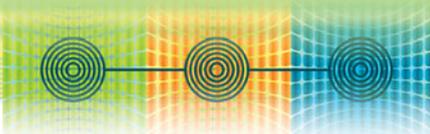
**APPENDIX B** **Answers to Selected Exercises** AP-33

**APPENDIX C** **Math Study Skills** AP-51

**APPENDIX D** **Table of Squares and Square Roots** AP-55

**INDEX** I-1

*This page intentionally left blank*



# Preface

During our time at Miami Dade College, we had the pleasure of meeting and working with students from diverse backgrounds. Many of our students were non-native English speakers, and we are forever indebted to them for teaching us the art of clear, concise, and accessible communication. *Applied Basic Mathematics* Second Edition is the culmination of the lessons learned from our students. It is an inviting and easy-to-read textbook that reflects the tone of our classrooms, uses the language of mathematics, and connects mathematics to the world through realistic and lively applications. We believe that our simple, relevant, and mathematically accurate exposition will benefit each and every student.

We were motivated, in part, to write this textbook by the lack of student success we were seeing at and above the level of introductory algebra. Like many of our colleagues, we observed that our students often lacked understanding of math terminology and concepts and were frequently unaware of the relevance of math to their lives. To address these issues, we have made every effort to define terms accurately, use terminology in its correct context, and constantly remind students of the applications of the math they are learning. Key definitions are bolded and defined in the margins for ease of reference. Each exercise set begins with Concept Check exercises, giving students the opportunity to assess their knowledge of terminology and key concepts. Additionally, each section of the text concludes with an “Apply Your Knowledge” learning objective. Many of our application problems include data from a variety of disciplines, career fields, and everyday situations.

In addition to providing a clear, concise, relevant, and mathematically correct exposition, we sought to facilitate the development of basic skills for future use at and above the introductory algebra level. To this end, we crafted Examples and Solution Strategies that guide the student through problems in a step-by-step manner. Each Example and Solution Strategy is followed by a Try-It Exercise. The Try-It Exercises allow the student to actively engage in his or her own learning by providing a problem similar to the Example. Accompanying each Try-It Exercise is a complete worked-out solution in Appendix A. The complete solution allows the student to assess his or her understanding of the concepts or algorithms developed in the section and detailed in the Example and Solution Strategy.

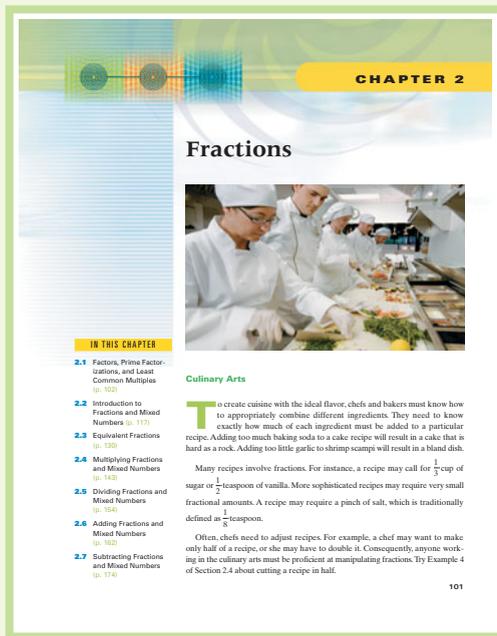
To further facilitate the development of basic skills, each section is followed by a comprehensive exercise set. Each exercise set contains Guide Problems, an exciting feature that is unique to this book. The Guide Problems pose problems similar to those in the examples and exercise set, guiding the student through the solution process in a step-by-step manner.

*Applied Basic Mathematics* provides the structure and support students need to navigate their basic mathematics course. Like a guidebook for basic math, this text leads your students through the course by asking them to **relate**, **reinforce**, and **review** as they learn.

## Relate

### CHAPTER OPENERS

Career-focused *Chapter Openers* illustrate the relevance of the math that students are about to learn.



## APPLY YOUR KNOWLEDGE

The last learning objective in each section of the text is called *Apply Your Knowledge*. These objectives provide extra examples and exercises to help students synthesize and apply what they have learned to real situations.

### Objective 2.1E APPLY YOUR KNOWLEDGE

#### EXAMPLE 7 Apply your knowledge

You have volunteered to be the “barbeque chef” for a school party. From experience, you know that hot dogs should be turned every 2 minutes and hamburgers should be turned every 3 minutes. How often will they be turned at the same time?

#### SOLUTION STRATEGY

$$\begin{aligned} 2 &= 1 \cdot 2 && \text{In this example, we are looking for the least common} \\ 3 &= 1 \cdot 3 && \text{multiple of 2 and 3.} \end{aligned}$$

The LCM of 2 and 3 is  $2 \cdot 3 = 6$ .

The hamburgers and hot dogs will be turned at the same time **every 6 minutes**.

### Real-World Connection

For centuries, mathematicians have searched for larger and larger prime numbers. At the time of this printing, the largest known prime had over 9,800,000 digits!

### EXAMPLE 2 Determine whether a number is prime

Determine whether each number is prime, composite, or neither.

- a. 14    b. 11    c. 23  
d. 36    e. 0    f. 19

### SOLUTION STRATEGY

- 14 composite    14 is composite because its factors are 1, 2, and 7.  
11 prime    11 is prime because its only factors are 1 and 11.  
23 prime    23 is prime because its only factors are 1 and 23.  
36 composite    36 is composite because its factors are 1, 2, 3, 4, 6, 9, 12, 18, and 36.  
0 neither    By definition, 0 is neither prime nor composite.  
19 prime    19 is prime because its only factors are 1 and 19.

## REAL-WORLD CONNECTIONS

*Real-World Connection* boxes point out interesting real-world applications for students as they read through the text.

## NUMERICAL FACTS OF LIFE

The *Numerical Facts of Life* feature gives students several data-driven exercises related to one real-world application.

### Numerical Facts of Life



You are a sports reporter for your college newspaper. For an upcoming story about the disparity of major league baseball salaries, your editor has asked you to compile some average payroll statistics for the 2006 season.

#### HIGHEST AND LOWEST MAJOR LEAGUE BASEBALL TEAM PAYROLLS: 2006 REGULAR SEASON

TEAM	2006 PAYROLL	2006 PAYROLL	2006 AVERAGE	2006 AVERAGE
		ROUNDED TO	PAYROLL PER GAME	SALARY PER PLAYER
		MILLIONS	162-GAME SEASON	30-PLAYER ROSTER
New York Yankees	\$194,663,079			
Boston Red Sox	\$120,099,824			
Los Angeles Angels	\$103,472,000			
Colorado Rockies	\$41,233,000			
Tampa Bay Devil Rays	\$35,417,967			
Florida Marlins	\$14,998,500			

- Calculate the figures for the column "2006 Payroll Rounded to Millions."
- Using your "rounded to millions" figures, calculate the figures for the column "2006 Average Payroll per Game." There are 162 regular-season games in major league baseball. Round each average payroll per game to dollars and cents.
- Using your "rounded to millions" figures, calculate the figures for the column "2006 Average Salary per Player." There are 30 players on a major league baseball roster. Round each average salary per player to the nearest dollar.

# Reinforce

## TRY-IT EXERCISES

*Try-It Exercises*, located after each *Example* and *Solution Strategy*, allow students to immediately reinforce what they have just learned. Solutions for all *Try-It Exercises* are located at the back of the text.

### EXAMPLE 5 Find the LCM of a set of numbers using prime factorization

Find the LCM of 4, 6, and 10 using prime factorization.

#### SOLUTION STRATEGY

$$\begin{aligned} 4 &= 2 \cdot 2 \\ 6 &= 2 \cdot 3 \\ 10 &= 2 \cdot 5 \end{aligned}$$

Find the prime factorization of each number.

$$2 \cdot 2 \cdot 3 \cdot 5$$

Write the product of prime factors with each factor occurring the greatest number of times that it occurs in any one factorization.

The greatest number of times 2 occurs in any factorization is two times.

The greatest number of times that 3 occurs is one time.

The greatest number of times that 5 occurs is one time.

The LCM is the product of all factors in the list.

The LCM of 4, 6, and 10 is  $2 \cdot 2 \cdot 3 \cdot 5 = 60$ .

#### TRY-IT EXERCISE 5

Find the LCM of 18, 15, and 12 using prime factorization.

Check your answer with the solution in Appendix A. ■

We now detail an alternate method. To demonstrate this approach, let's once again search for the LCM of 8 and 12. To begin, list the numbers 8 and 12 in a row as shown below.

#### proper fraction or common fraction

A fraction in which the numerator is less than the denominator.

#### improper fraction

A fraction in which the numerator is greater than or equal to the denominator.

**proper fraction** or a **common fraction**. Some other examples of proper fractions are as follows.

$$\frac{1}{2} \quad \frac{3}{16} \quad \frac{9}{32}$$

A fraction in which the numerator is greater than or equal to the denominator is called an **improper fraction**. An improper fraction is always greater than or equal to 1. Some examples of improper fractions are as follows.

$$\frac{15}{11} \quad \frac{19}{7} \quad \frac{2}{2}$$

## VOCABULARY

*Vocabulary* definitions are located in the margins for easy reference while studying.

## LEARNING TIPS

*Learning Tips* in the margins provide suggestions and hints that will be useful to students as they navigate the text and work the exercises.

#### Learning Tip

To simplify the fraction  $\frac{6}{10}$ , divide both the numerator and denominator by the common factor, 2. We can explicitly indicate this division as follows.

$$\frac{6}{10} = \frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

Likewise, to simplify the fraction  $\frac{8}{12}$ , divide both the numerator and denominator by the common factor, 4. We can explicitly indicate this division as follows.

$$\frac{8}{12} = \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$

In this text, we will use the convention of crossing out the numerator and denominator when dividing out a common factor.

As another example, consider  $\frac{8}{12}$ . Note that 4 is a factor common to both 8 and 12. We can simplify the fraction by dividing both the numerator and denominator by 4.

$$\frac{8}{12} = \frac{\cancel{8}^2}{\cancel{12}_3} = \frac{2}{3}$$

In simplifying fractions, we often seek the largest factor that is common to both the numerator and denominator. The **greatest common factor** or **GCF** is the largest factor shared by two or more numbers.

Sometimes, the GCF isn't obvious. In such cases, divide out any common factors until the fraction is simplified completely.

#### Steps for Simplifying a Fraction

**Step 1.** Identify and divide out any factors common to the numerator and the denominator. Use the greatest common factor if you can identify it.

**Step 2.** If a common factor remains in the numerator and denominator of the resulting fraction, repeat step 1 until the fraction is simplified to lowest terms.

Along with plenty of practice exercises organized by objective, you'll also find the following types of exercises in the Section Review Exercise sets:

**SECTION 2.5 REVIEW EXERCISES**

- In the division problem  $\frac{a}{b} \div \frac{c}{d}$ , the fraction  $\frac{a}{b}$  is called the \_\_\_\_\_ and the fraction  $\frac{c}{d}$  is called the \_\_\_\_\_.
- The \_\_\_\_\_ of the fraction  $\frac{a}{b}$  is the fraction  $\frac{b}{a}$  where  $a \neq 0$  and  $b \neq 0$ .
- To divide fractions, \_\_\_\_\_ the dividend by the \_\_\_\_\_ of the divisor and simplify if possible.
- To divide a combination of fractions, whole numbers, or mixed numbers, change any whole numbers or mixed numbers to \_\_\_\_\_ fractions.

## CONCEPT CHECK

Located at the beginning of every section exercise set, **Concept Check** exercises give students fill-in-the-blank problems that check for basic comprehension of the section's concepts.

**Objective 2.5A Divide fractions**

**GUIDE PROBLEMS**

- Divide  $\frac{3}{5} \div \frac{9}{11}$ .
  - Identify the reciprocal of the divisor.  
The reciprocal of  $\frac{9}{11}$  is  $\frac{\quad}{\quad}$ .
  - Rewrite the division problem as a multiplication problem.  
 $\frac{3}{5} \div \frac{9}{11} = \frac{3}{5} \cdot \frac{\quad}{\quad}$
  - Multiply the dividend by the reciprocal of the divisor.  
 $\frac{3}{5} \cdot \frac{\quad}{\quad} = \frac{\quad}{\quad}$   
 $= \frac{1}{5} \cdot \frac{\quad}{\quad} = \frac{\quad}{\quad}$
- Divide  $\frac{5}{8} \div \frac{15}{16}$ .
  - Identify the reciprocal of the divisor.  
The reciprocal of  $\frac{15}{16}$  is  $\frac{\quad}{\quad}$ .
  - Rewrite the division problem as a multiplication problem.  
 $\frac{5}{8} \div \frac{15}{16} = \frac{5}{8} \cdot \frac{\quad}{\quad}$
  - Multiply the dividend by the reciprocal of the divisor.  
 $\frac{5}{8} \cdot \frac{\quad}{\quad} = \frac{\quad}{\quad}$   
 $= \frac{1}{1} \cdot \frac{\quad}{\quad} = \frac{\quad}{\quad}$

## GUIDE PROBLEMS

Provided for each objective in the exercise sets, step-by-step **Guide Problems** reinforce the problem-solving skills needed to succeed in working through the exercises that follow.

**CUMULATIVE SKILLS REVIEW**

- Multiply  $192 \cdot 102$ . (1.4B)
- What type of fraction is  $\frac{3}{52}$ ? (2.1A)
- Multiply  $\frac{25}{81} \cdot \frac{3}{75}$ . (2.4A)
- What is the total of 143, 219, and 99? (1.2C)
- Find the prime factorization of 90. (2.1C)
- Simplify  $\frac{105}{135}$ . (2.3A)
- Multiply  $\frac{6}{7} \cdot \frac{2}{3} \cdot 1\frac{1}{2}$ . (2.4B)
- Subtract  $5637 - 5290$ . (1.3A)

## CUMULATIVE SKILLS REVIEW

**Cumulative Skills Review** exercises appear at the end of each section to reinforce skills that students will need to move on to the next section.

# Review

10-MINUTE CHAPTER REVIEW		
3.1 Understanding Decimals		
Objective	Important Concepts	Illustrative Examples
<b>A.</b> Identify the place value of a digit in a decimal (page 208)	<b>decimal fraction</b> A number that can be written as a fraction whose denominator is a power of 10. <b>decimal number</b> or <b>decimal</b> A number written in decimal notation. <b>terminating decimal</b> A decimal whose expansion ends. <b>non-terminating decimal</b> A decimal whose expansion does not end.	Identify the place value of the indicated digit. a. 2.1 <b>6</b> 59 <b>hundredths</b> b. 23. <b>6</b> 81 <b>tenths</b> c. 235.08 <b>3</b> 24 <b>thousandths</b> d. 0.835 <b>0</b> 29 <b>ten-thousandths</b>

## 10-MINUTE CHAPTER REVIEW

The *10-Minute Chapter Review* is a comprehensive chapter summary chart that reviews important concepts and provides illustrative examples for each.

## CHAPTER REVIEW EXERCISES

Organized by section and objective, *Chapter Review Exercises* provide thorough practice for each concept within the chapter. Answers for *all* chapter review exercises can be found in Appendix B at the back of the book.

CHAPTER REVIEW EXERCISES	
Identify the place value of the indicated digit. (3.1A)	
1. 13. <u>3</u> 512	2. 0.1457919
3. 314.09 <u>2</u> 45	4. 89.2 <u>5</u> 901
5. 0.35021 <u>8</u>	6. 1476.002159 <u>6</u> 2
Write each decimal in word form. (3.1B)	
7. 28.355	8. 0.00211
9. 0.158	10. 142.12
11. 59.625	12. 0.39

ASSESSMENT TEST	
Identify the place value of the indicated digit.	
1. 23.0 <u>7</u> 19	2. 0.3609 <u>1</u> 4
Write each decimal in word form.	
3. 42.949	4. 0.0365
Write each decimal in decimal notation.	
5. twenty one hundred-thousandths	6. sixty-one and two hundred eleven thousandths
Convert each decimal to a fraction or a mixed number. Simplify, if possible.	
7. 8.85	8. 0.125

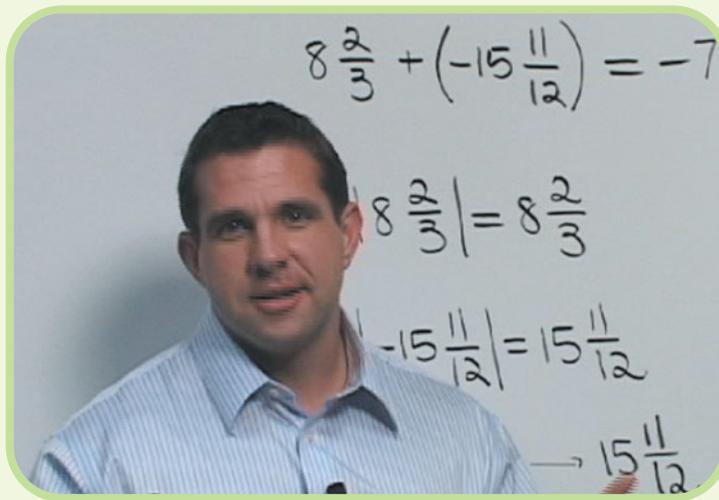
## ASSESSMENT TEST

The final element for each chapter is an *Assessment Test* that helps students prepare for their in-class test. Answers to *all* assessment test problems can be found in Appendix B.

## Relate, Reinforce, and Review with the Clark & Brechner Media Package

### VIDEO RESOURCES ON DVD

Author Bill Clark provides students with a short lecture for each section of the text, highlighting key examples and exercises.



#### MYMATHLAB®

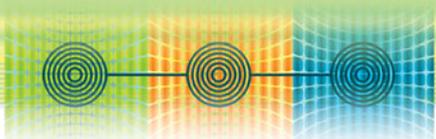
For more information, visit our Web site at [www.mymathlab.com](http://www.mymathlab.com) or p. xix.



#### MATHXL®

For more information, visit our Web site at [www.mathxl.com](http://www.mathxl.com) or p. xix.

*This page intentionally left blank*



# Supplements

## STUDENT SUPPLEMENTS

### STUDENT'S SOLUTIONS MANUAL

- Contains solutions for the odd-numbered Section Review (including Concept Check and Guide Problems), Cumulative Skills Review and Numerical Facts of Life exercises, and solutions to all Review and Assessment Test exercises.

ISBNs: 0-321-69783-9; 978-0-321-69783-7

### VIDEO RESOURCES ON DVD

- Complete set of digitized videos on DVD-ROM for student use at home or on campus.
- Presents a series of lectures correlated directly to the content of each text section.
- Features author Bill Clark, who presents material in a format that stresses student interaction, often using examples and exercises from the text.
- Ideal for distance learning or supplemental instruction.

ISBNs: 0-321-69773-1; 978-0-321-69773-8

### WORKSHEETS FOR CLASSROOM OR LAB PRACTICE

- Lab and classroom-friendly workbooks offer extra practice exercises for every text section.
- Ample space for students to show their work.
- Learning objectives and key vocabulary terms for each text section are listed.
- Additional Vocabulary exercises are provided.

ISBNs: 0-321-69774-X; 978-0-321-69774-5

## INSTRUCTOR SUPPLEMENTS

### ANNOTATED INSTRUCTOR'S EDITION

- Contains Teaching Tips and provides answers to every exercise in the textbook.

ISBNs: 0-321-69782-0; 978-0-321-69782-0

### INSTRUCTOR'S SOLUTIONS MANUAL

- Contains solutions to all even-numbered Section Review (including Concept Check and Guide Problems), Cumulative Skills Review and Numerical Facts of Life exercises, and solutions to all Review and Assessment Test exercises.

ISBNs: 0-321-69772-3; 978-0-321-69772-1

## **INSTRUCTOR AND ADJUNCT SUPPORT MANUAL**

- Includes resources designed to help both new and adjunct faculty with course preparation and classroom management.
- Offers helpful teaching tips correlated to text sections.

ISBNs: 0-321-69778-2; 978-0-321-69778-3

## **PRINTABLE TEST BANK**

- Contains four tests for each chapter and two final exams.

ISBNs: 0-321-69780-4; 978-0-321-69780-6

## **TESTGEN®**

- Enables instructors to build, edit, print, and administer tests.
- Features a computerized bank of algorithmically based questions developed to cover all text objectives.
- Instructors can modify questions or add new questions by using the built-in question editor, which allows users to create graphs, import graphics, insert math notations, and insert variable numbers or text.
- Tests can be printed or administered online via the Web or other network.
- Available on a dual-platform Windows/Macintosh CD-ROM.

ISBNs: 0-321-69777-4; 978-0-321-69777-6

## **POWERPOINT® LECTURE SLIDES**

- Present key concepts and definitions for each section of the text.
- Available within MyMathLab or at <http://www.pearsonhighered.com>.

## **PEARSON ADJUNCT SUPPORT CENTER**

The Pearson Adjunct Support Center (<http://www.pearson tutorservices.com/math-adjunct.html>) is staffed by qualified mathematics instructors with over 50 years of combined experience at both the community college and university level. Assistance is provided for faculty in the following areas:

- Suggested syllabus consultation
- Tips on using materials packed with your book
- Book-specific content assistance
- Teaching suggestions including advice on classroom strategies

For more information, visit [www.aw-bc.com/tutorcenter/math-adjunct.html](http://www.aw-bc.com/tutorcenter/math-adjunct.html).

## **MATHXL® Online Course (access code required)**

MathXL® is a powerful online homework, tutorial, and assessment system that accompanies Pearson Education's textbooks in mathematics and statistics. With MathXL, instructors can:

- Create, edit, and assign online homework and tests using algorithmically generated exercises correlated at the objective level to the textbook.

- Create and assign their own online exercises and import TestGen tests for added flexibility.
- Maintain records of all student work tracked in MathXL’s online gradebook.

With MathXL, students can:

- Take chapter tests in MathXL and receive personalized study plans and/or personalized homework assignments based on their test results.
- Use the study plan and/or the homework to link directly to tutorial exercises for the objectives they need to study.
- Access supplemental animations and video clips directly from selected exercises.

MathXL is available to qualified adopters. For more information, visit our Web-site at [www.mathxl.com](http://www.mathxl.com), or contact your Pearson representative.

#### **MYMATHLAB® Online Course (access code required)**

MyMathLab® is a series of text-specific, easily customizable online courses for Pearson Education’s textbooks in mathematics and statistics. MyMathLab gives you the tools you need to deliver all or a portion of your course online, whether your students are in a lab setting or working from home. MyMathLab provides a rich and flexible set of course materials, featuring free-response exercises that are algorithmically generated for unlimited practice and mastery. Students can also use online tools, such as video lectures, animations, and a multimedia textbook, to independently improve their understanding and performance. Instructors can use MyMathLab’s homework and test managers to select and assign online exercises correlated directly to the textbook, and they can also create and assign their own online exercises and import TestGen® tests for added flexibility. MyMathLab’s online gradebook—designed specifically for mathematics and statistics—automatically tracks students’ homework and test results and gives the instructor control over how to calculate final grades. Instructors can also add offline (paper-and-pencil) grades to the gradebook. MyMathLab also includes access to the **Pearson Tutor Center** ([www.pearson tutorservices.com](http://www.pearson tutorservices.com)). The Tutor Center is staffed by qualified mathematics instructors who provide textbook-specific tutoring for students via toll-free phone, fax, e-mail, and interactive Web sessions. MyMathLab is available to qualified adopters. For more information, visit our Web site at [www.mymathlab.com](http://www.mymathlab.com) or contact your Pearson sales representative.