Table of Contents

CHAPTER 1 Operations with Integers 1

Study Strategies: An Introduction to the P.O.W.E.R. Framework 2
Study Strategies: Using P.O.W.E.R. to Succeed in Your Course 3
Section 1.1 Place Value and Rounding 6
Section 1.2 Introduction to Integers 13
Section 1.3 Adding Integers 21
Section 1.4 Subtracting Integers 32
Section 1.5 Estimating a Sum or Difference 37
Section 1.6 Multiplying Integers and Estimation 43
Section 1.7 Dividing Integers and Estimation 53
Putting It All Together 61
Section 1.8 Exponents, Roots, and Order of Operations 64
Group Activity 72
emPOWERme: Who's in Charge? 73
Chapter Summary 75
Chapter 1 Review Exercises 83
Chapter 1 Test 85

CHAPTER 2 Expressions and Equations 87

Study Strategies: Strategies for Reading Math (and Other) Textbooks 88
Section 2.1 Introduction to Algebra 90
Section 2.2 Simplifying Expressions 99
Section 2.3 Solving Linear Equations Part I 108
Section 2.4 Solving Linear Equations Part II 115
Section 2.5 Solving Linear Equations Part III 120
Section 2.6 Solve Applied Problems Involving One Unknown 128
Section 2.7 Solve Applied Problems Involving Two Unknowns 135
Group Activity 142
emPOWERme: Discover Your Reading Attention Span 143
Chapter Summary 144
Chapter 2 Review Exercises 148
Chapter 2 Test 150
Cumulative Review for Chapters 1 and 2 151

CHAPTER 3 Operations with Signed Fractions 152

Study Strategies: Time Management 153
Section 3.1 Introduction to Signed Fractions 156
Section 3.2 Writing Fractions in Lowest Terms 164
Section 3.3 Multiplying and Dividing Signed Fractions 179
Section 3.4 Adding and Subtracting Like Fractions and Finding a Least Common Denominator 194
Section 3.5 Adding and Subtracting Unlike Fractions 207
Section 3.6 Operations with Mixed Numbers 219
Putting It All Together 238
Section 3.7 Order Relations and Order of Operations 245
Section 3.8 Solving Equations Containing Fractions 252
Group Activity 263
emPOWERme: Find Your Procrastination Quotient 264
Chapter Summary 265
Chapter 3 Review Exercises 276
Chapter 3 Test 279
Cumulative Review for Chapters 1–3 280

CHAPTER 4 Basic Geometry Concepts and Algebra 281

Study Strategies: Taking Notes in Class 282
Section 4.1 Introduction to Geometry 284
Section 4.2 Rectangles, Squares, Parallelograms, and Trapezoids 293
Section 4.3 Triangles 308
Section 4.4 Volume and Surface Area 318
Putting It All Together 326
Section 4.5 Solving Geometry Applications Using Algebra 333
Group Activity 340
emPOWERme: Active Listening 341
Chapter Summary 343
Chapter 4 Review Exercises 349
Chapter 4 Test 353
Cumulative Review for Chapters 1–4 355

CHAPTER 5 Signed Decimals 356

Study Strategies: Taking Math Tests 357
Section 5.1 Reading and Writing Decimals 360
Section 5.2 Rounding Decimals 372
Section 5.3 Adding and Subtracting Signed Decimals 381

Section 5.4 Multiplying Signed Decimals 391
Section 5.5 Dividing Signed Decimals and Order of Operations 399
Putting It All Together 409
Section 5.6 Writing Fractions as Decimals 414
Section 5.7 Mean, Median, and Mode 421
Section 5.8 Solving Equations Containing Decimals 433
Section 5.9 Square Roots and the Pythagorean Theorem 440
Section 5.10 Circles, Spheres, Cylinders, and Cones 448
Group Activity 466
emPOWERme: Is Anxiety the Hardest Problem on the Test? 466
Chapter Summary 468
Chapter 5 Review Exercises 478
Chapter 5 Test 482
Cumulative Review for Chapters 1–5 484

CHAPTER 6 Ratios, Rates, and Proportions 485

Study Strategies: Doing Math Homework 486
Section 6.1 Ratios 489
Section 6.2 Rates 497
Section 6.3 Proportions 504
Section 6.4 Solve Proportions 509
Section 6.5 Solve Applied Problems Involving Proportions 514
Section 6.6 Angles 520
Section 6.7 Solve Applied Problems Involving Congruent and Similar Triangles 533
Group Activity 547
emPOWERme: The Right Approach to Homework 549
Chapter Summary 550
Chapter 6 Review Exercises 556
Chapter 6 Test 560
Cumulative Review for Chapters 1–6 561

CHAPTER 7 Measurement and Conversion 563

Study Strategies: Know Your School 564
Section 7.1 Using U.S. Customary Measurements 567
Section 7.2 The Metric System: Length 579
Section 7.3 The Metric System: Capacity and Weight (Mass) 589
Section 7.4 Solve Applied Problems Involving Metric Units 599
Section 7.5 Metric–U.S. Customary Conversions and Temperature 604
Group Activity 612
emPOWERme: My School 614
Chapter Summary 615
Chapter 7 Review Exercises 619
Chapter 7 Test 621
Cumulative Review for Chapters 1–7 622

CHAPTER 8 Percents 624

Study Strategies: Using the Internet to Supplement Your Learning 625
Section 8.1 Percents, Fractions, and Decimals 627
Section 8.2 Compute Basic Percents Mentally 640
Section 8.3 Use an Equation to Solve Percent Problems 650
Section 8.4 Solve Applications Involving Percents 658
Putting It All Together 667
Section 8.5 More Applications with Percents 673
Section 8.6 Simple and Compound Interest 685
Group Activity 696
emPOWERme: The Internet, Learning, and Me 697
Chapter Summary 698
Chapter 8 Review Exercises 707
Chapter 8 Test 710
Cumulative Review for Chapters 1–8 711

CHAPTER 9 Graphs and the Rectangular Coordinate System 713

Study Strategies: Beginning Financial Literacy 714
Section 9.1 Reading Tables, Pictographs, Bar Graphs, and Line Graphs 716
Section 9.2 Frequency Distributions and Histograms 727
Section 9.3 Using and Making Circle Graphs 733
Section 9.4 Introduction to Linear Equations in Two Variables 740
Section 9.5 Graphing Linear Equations in Two Variables 748
Group Activity 755
emPOWERme: Discover Your Personal Financial Philosophy 757
Chapter Summary 759
Chapter 9 Review Exercises 761
Chapter 9 Test 764
Cumulative Review for Chapters 1–9 766

Chapter 10 and Chapter 11 are available online

CHAPTER 10 The Rules of Exponents and Polynomials 1

Study Strategies: Improving Your Memory 2
Section 10.1 The Product Rule and Power Rules 6
Section 10.2 Integer Exponents and the Quotient Rule 13
Putting It All Together 18
Section 10.3 Scientific Notation 21
Section 10.4 Adding and Subtracting Polynomials 27
Section 10.5 Multiplying Polynomials 34
Group Activity 39
emPOWERme: What's Your Memory Style? 40
Chapter Summary 41
Chapter 10 Review Exercises 42
Chapter 10 Test 44
Cumulative Review for Chapters 1–10 45

This chapter is available online at www.connectmath.com and www.mcgrawhillcreate.com.

CHAPTER 11 Transition to Algebra 1

Study Strategies: The Writing Process 2
Section 11.1 Sets of Numbers 4
Section 11.2 More on Solving Linear Equations 12
Section 11.3 Solve a Formula for a Specific Variable 19
Section 11.4 Solving Linear Inequalities in One Variable 24
Group Activity 34
emPOWERme: Writing Clearly 35
Chapter Summary 36
Chapter 11 Review Exercises 38
Chapter 11 Test 39
Cumulative Review for Chapters 1–11 40

This chapter is available online at www.connectmath.com and www.mcgrawhillcreate.com.

APPENDIX A Whole-Number Arithmetic A-1

Section A.1 Adding Whole Numbers A-1
Section A.2 Subtracting Whole Numbers A-14
Section A.3 Multiplying Whole Numbers A-25
Section A.4 Introduction to Division and Short Division A-36
Section A.5 Long Division of Whole Numbers A-47
Appendix Review Exercises A-54

Appendix B is available online

APPENDIX B

Section B.1 Deriving the Area of a Parallelogram and the Area of a Triangle B-1
Section B.2 Inductive and Deductive Reasoning B-3

This appendix is available online at www.connectmath.com and www.mcgrawhillcreate.com.

Student Answer Appendix SA-1
Instructor Answer Appendix (Annotated Instructor Edition only) IA-1
Index I-1