

Contents and Introduction

- Table of Contents
- Legal Information
- How to Use This Book
- Acknowledgements

1 Properties of Arithmetic

- 1.1 Why Start with Arithmetic?
- 1.2 Addition
- 1.3 Multiplication
- 1.4 Negation
- 1.5 Subtraction
- 1.6 Reciprocals
- 1.7 Division
- 1.8 Summary
- Review Problems
- Challenge Problems

2 Exponents

- 2.1 Squares
- 2.2 Higher Exponents
- 2.3 Zero as an Exponent
- 2.4 Negative Exponents
- 2.5 Summary
- Review Problems
- Challenge Problems

3 Number Theory

- 3.1 Multiples
- 3.2 Divisibility Tests
- 3.3 Prime Numbers
- 3.4 Prime Factorization
- 3.5 Least Common Multiple
- 3.6 Divisors
- 3.7 Greatest Common Divisor
- 3.8 Summary
- Review Problems
- Challenge Problems

4 Fractions

- 4.1 What is a Fraction?
- 4.2 Multiplying Fractions
- 4.3 Dividing by a Fraction
- 4.4 Raising Fractions to Powers
- 4.5 Simplest Form of a Fraction
- 4.6 Comparing Fractions
- 4.7 Adding and Subtracting Fractions
- 4.8 Mixed Numbers
- 4.9 Summary
- Review Problems
- Challenge Problems

5 Equations and Inequalities

- 5.1 Expressions
- 5.2 Solving Linear Equations I
- 5.3 Solving Linear Equations II
- 5.4 Word Problems
- 5.5 Inequalities
- 5.6 Summary
- Review Problems
- Challenge Problems

6 Decimals

- 6.1 Arithmetic with Decimals
- 6.2 Rounding
- 6.3 Decimals and Fractions
- 6.4 Repeating Decimals
- 6.5 Summary
- Review Problems
- Challenge Problems

7 Ratios, Conversions, and Rates

- 7.1 What is a Ratio?
- 7.2 Multi-way Ratios
- 7.3 Proportions
- 7.4 Conversions
- 7.5 Speed
- 7.6 Other Rates
- 7.7 Summary
- Review Problems
- Challenge Problems

8 Percents

- 8.1 What is a Percent?
- 8.2 Word Problems
- 8.3 Percent Increase and Decrease
- 8.4 Summary
- Review Problems
- Challenge Problems

9 Square Roots

- 9.1 From Squares to Square Roots
- 9.2 Square Roots of Non-square Integers
- 9.3 Arithmetic with Square Roots
- 9.4 Summary
- Review Problems
- Challenge Problems

10 Angles

- 10.1 Measuring Angles
- 10.2 Parallel Lines
- 10.3 Angles in Polygons
- 10.4 Summary
- Review Problems
- Challenge Problems

11 Perimeter and Area

- 11.1 Measuring Segments
- 11.2 Area
- 11.3 Circles
- 11.4 Summary
- Review Problems
- Challenge Problems

12 Right Triangles and Quadrilaterals

- 12.1 The Pythagorean Theorem
- 12.2 Some Special Triangles
- 12.3 Types of Quadrilaterals
- 12.4 Summary
- Review Problems
- Challenge Problems

13 Data and Statistics

- 13.1 Basic Statistics
- 13.2 Limits of Basic Statistics
- 13.3 Tables, Graphs, and Charts
- 13.4 Summary
- Review Problems
- Challenge Problems

14 Counting

- 14.1 Counting with Addition and Subtraction
- 14.2 The Multiplication Principle
- 14.3 Casework
- 14.4 Counting Pairs
- 14.5 Probability
- 14.6 Summary
- Review Problems
- Challenge Problems

15 Problem-Solving Strategies

- 15.1 Find a Pattern
- 15.2 Make a List
- 15.3 Draw a Picture
- 15.4 Work Backwards
- 15.5 Summary
- Review Problems
- Challenge Problems