Table of Contents

Pre Algebra and Elementary Algebra

1. WHOLE NUMBERS

- 1.1 Place Value and Names for Numbers
- 1.2 Addition with Whole Numbers, and Perimeter
- 1.3 Rounding Numbers, Estimating Answers and Displaying Information
- 1.4 Subtraction with Whole Numbers
- 1.5 Multiplication with Whole Numbers, and Area
- 1.6 Division with Whole Numbers
- 1.7 Exponents, Order of Operations, and Averages

2. INTRODUCTION TO ALGEBRA

- 2.1 Positive and Negative Numbers
- 2.2 Addition with Negative Numbers
- 2.3 Subtraction with Negative Numbers
- 2.4 Multiplication with Negative Numbers
- 2.5 Division with Negative Numbers
- 2.6 Simplifying Algebraic Expressions

3. FRACTIONS 1: MULTIPLICATION AND DIVISION

- 3.1 The Meaning and Properties of Fractions
- 3.2 Prime Numbers, Factors and Reducing to Lowest Terms
- 3.3 Multiplication with Fractions
- 3.4 Division with Fractions

4. FRACTIONS 2: ADDITION AND SUBTRACTION

- 4.1 Addition and Subtraction with Fractions
- 4.2 Mixed-Number Notation
- 4.3 Multiplication and Division with Mixed Numbers
- 4.4 Addition and Subtraction with Mixed Numbers
- 4.5 Combinations of Operations and Complex Fractions

5. DECIMALS

- 5.1 Decimal Notation and Place Value
- 5.2 Addition and Subtraction with Decimals
- 5.3 Multiplication with Decimals
- 5.4 Division with Decimals
- 5.5 Fractions and Decimals
- 5.6 Square Roots and the Pythagorean Theorem

6. RATIO AND PROPORTION

- 6.1 Ratios
- 6.2 Rates and Unit Pricing
- 6.3 Solving Equations by Division
- 6.4 Proportions
- 6.5 Applications of Proportions
- 6.6 Similar Figures

7. PERCENT

- 7.1 Percents, Decimals, and Fractions
- 7.2 Basic Percent Problems
- 7.3 General Applications of Percent
- 7.4 Sales Tax and Commission
- 7.5 Percent Increase or Decrease, and Discount
- 7.6 Interest

8. MEASUREMENT

- 8.1 Unit Analysis I: Length
- 8.2 Unit Analysis II: Area and Volume
- 8.3 Unit Analysis III: Weight
- 8.4 Converting Between the Two Systems and Temperature
- 8.5 Operations with Time and Mixed Units

9. GEOMETRY

- 9.1 Perimeter and Circumference
- 9.2 Area
- 9.3 Surface Area
- 9.4 Volume

10. SOLVING EQUATIONS

10.1 The Distributive Property and Algebraic Expressions

10.2 The Addition Property of Equality

10.3 The Multiplication Property of Equality

10.4 Linear Equations in One Variable

10.5 Applications

- 10.6 Evaluating Formulas
- **10.7** Linear Inequalities

11. LINEAR EQUATIONS AND INEQUALITIES IN TWO VARIABLES

11.1 Paired Data and Graphing Ordered Pairs

11.2 Solutions to Linear Equations in Two Variables

11.3 Graphing Linear Equations in Two Variables

11.4 More on Graphing: Intercepts

11.5 The Slope of a Line

12. EXPONENTS AND POLYNOMIALS

12.1 Multiplication with Exponents

12.2 Division with Exponents

12.3 Operations with Monomials

12.4 Addition and Subtraction of Polynomials

12.5 Multiplication with Polynomials

12.6 Binomial Squares and Other Special Products

12.7 Dividing a Polynomial by a Monomial

12.8 Dividing a Polynomial by a Polynomial

13. FACTORING

- 13.1 The Greatest Common Factor and Factoring by Grouping
- 13.2 Factoring Trinomials
- 13.3 More Trinomials to Factor
- 13.4 The Difference of Two Squares
- 13.5 The Sum and Difference of Two Cubes
- 13.6 Factoring: A General Review
- 13.7 Solving Equations by Factoring
- 13.8 Applications

14. RATIONAL EXPRESSIONS

14.1 Reducing Rational Expressions to Lowest Terms

14.2 Multiplication and Division of Rational Expressions

14.3 Addition and Subtraction of Rational Expressions

15. ROOTS AND RADICALS

15.1 Definitions and Common Roots

15.2 Properties of Radicals

15.3 Simplified Form for Radicals

15.4 Addition and Subtraction of Radical Expressions

15.5 Multiplication and Division of Radicals