

CONTENTS

1 AN INTRODUCTION TO ALGEBRA

- 1.1** Introducing the Language of Algebra
- 1.2** Fractions
- 1.3** The Real Numbers
- 1.4** Adding Real Numbers; Properties of Addition
- 1.5** Subtracting Real Numbers
- 1.6** Multiplying and Dividing Real Number; Properties of Multiplication and Division
- 1.7** Exponents and Order of Operations
- 1.8** Algebraic Expressions
- 1.9** Simplifying Algebraic Expressions Using Properties of Real Numbers

2 EQUATIONS, INEQUALITIES, AND PROBLEM SOLVING

- 2.1** Solving Equations Using Properties of Equality
- 2.2** More About Solving Equations
- 2.3** Applications of Percent
- 2.4** Formulas
- 2.5** Problem Solving
- 2.6** More About Problem Solving
- 2.7** Solving Inequalities

3 GRAPHING LINEAR EQUATIONS AND INEQUALITIES IN TWO VARIABLES; FUNCTIONS

- 3.1** Graphing Using the Rectangular Coordinate System
- 3.2** Graphing Linear Equations
- 3.3** Intercepts
- 3.4** Slope and Rate of Change
- 3.5** Slope-Intercept Form
- 3.6** Point-Slope Form
- 3.7** Graphing Linear Inequalities
- 3.8** An Introduction to Functions

4 SYSTEMS OF LINEAR EQUATIONS AND INEQUALITIES

- 4.1** Solving Systems of Equations by Graphing
- 4.2** Solving Systems of Equations by Substitution
- 4.3** Solving Systems of Equations by Elimination (Addition)
- 4.4** Problem Solving Using Systems of Equations
- 4.5** Solving Systems of Linear Inequalities

5 EXPONENTS AND POLYNOMIALS

- 5.1** Rules for Exponents
- 5.2** Zero and Negative Exponents
- 5.3** Scientific Notation
- 5.4** Polynomials
- 5.5** Adding and Subtracting Polynomials
- 5.6** Multiplying Polynomials
- 5.7** Special Products
- 5.8** Dividing Polynomials

6 FACTORING AND QUADRATIC EQUATIONS

- 6.1** The Greatest Common Factor; Factoring by Grouping
- 6.2** Factoring Trinomials of the Form $x^2 + bx + c$
- 6.3** Factoring Trinomials of the Form $ax^2 + bx + c$
- 6.4** Factoring Perfect Square Trinomials and the Differences of Two Squares
- 6.5** Factoring the Sum and Difference of Two Cubes
- 6.6** A Factoring Strategy
- 6.7** Solving Quadratic Equations by Factoring
- 6.8** Applications of Quadratic Equations

7 RATIONAL EXPRESSIONS AND EQUATIONS

- 7.1** Simplifying Rational Expressions
- 7.2** Multiplying and Dividing Rational Expressions
- 7.3** Adding and Subtracting with Like Denominators, Least Common Denominators
- 7.4** Adding and Subtracting with Unlike Denominators
- 7.5** Simplifying Complex Fractions
- 7.6** Solving Rational Equations
- 7.7** Problem Solving Using Rational Equations
- 7.8** Proportions and Similar Triangles
- 7.9** Variation

8 RADICAL EXPRESSIONS AND EQUATIONS

- 8.1** An Introduction to Square Roots
- 8.2** Simplifying Square Roots
- 8.3** Adding and Subtracting Radical Expressions
- 8.4** Multiplying and Dividing Radical Expressions
- 8.5** Solving Radical Equations
- 8.6** Higher-Order Roots and Rational Exponents

9 QUADRATIC EQUATIONS

- 9.1** Solving Quadratic Equations: The Square Root Property
- 9.2** Solving Quadratic Equations: Completing the Square
- 9.3** Solving Quadratic Equations: The Quadratic Formula
- 9.4** Complex Numbers
- 9.5** Graphing Quadratic Equations

- APPENDIXES**
- APPENDIX I: Statistics**
 - APPENDIX II: Roots and Powers**
 - APPENDIX III: Answers to Selected Exercises**