

## Prealgebra and Elementary Algebra | Table of Contents

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### 14.6 Solve Rational Equations

- Solving Rational Equations
  - Solve a rational equation that results in a linear equation
  - Solve a rational equation that results in a quadratic equation
  - Solve a rational equation for a specific variable

### 14.7 Solve Proportion and Similar Figure Applications

- Proportions and Problem Solving with Rational Equations
  - Solve proportions (20)
  - Solve applications with proportions
  - Solve similar figure applications

### 14.8 Solve Uniform Motion and Work Applications

- Uniform Motion, Work, and Problem Solving
    - Solve uniform motion applications involving rational equations
    - Solve problems involving rates of work using rational equations
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#### 14.9 Use Direct and Inverse Variation

- Variation and Problem Solving
  - Solve direct variation problems
  - Solve inverse variation problems

### **Chapter 15: Roots and Radicals**

#### 15.1 Simplify and Use Square Roots

- Understanding Square Roots
  - Simplify expressions with square roots (20)
  - Estimate square roots and approximate square roots (20, 20)
  - Simplify variable expressions with square roots (20)

#### 15.2 Simplify Square Roots

- Simplifying Square Root Expressions
  - Use the product property to simplify square roots
  - Use the quotient property to simplify a perfect square fraction (20)
  - Use the quotient property to simplify square roots

#### 15.3 Add and Subtract Square Roots

- Adding and Subtracting Square Root Expressions
  - Add and subtract like square roots (20)
  - Add and subtract square roots that need simplification (20)

#### 15.4 Multiply Square Roots

- Multiplying Square Root Expressions
  - Multiply square roots
  - Use polynomial multiplication to multiply square roots
  - Use special product formulas to multiply square roots

#### 15.5 Divide Square Roots

- Dividing Square Root Expressions and Rationalizing Denominators
  - Divide square roots (20)
  - Rationalize a one-term denominator (20)
  - Rationalize a two-term denominator (20)

#### 15.6 Solve Equations with Square Roots

- Solving Radical Equations
  - Solve a square root equation with a single radical (20)
  - Solve a square root equation with two radicals (20)
  - Use square roots in applications

#### 15.7 Higher Roots

- Understanding Higher Roots
  - Simplify numerical expressions with higher roots
  - Simplify expressions with higher roots (20)
- Simplifying Higher Roots and Operations on Higher Roots
  - Use the product property to simplify expressions with higher roots
  - Use the quotient property to simplify expressions with higher roots
  - Add and subtract higher roots (20)

#### 15.8 Rational Exponents

- Simplifying Expressions with Rational Exponents
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- Simplify expressions with rational exponents and a numerator of 1 (20)
- Simplify expressions with rational exponents and a numerator greater than 1 (20)
- Use the laws of exponents to simplify expressions with rational exponents

## **Chapter 16: Quadratic Equations**

### 16.1 Solve Quadratic Equations Using the Square Root Property

- Solving Quadratic Equations Using the Square Root Property
  - Solve a quadratic equation using the square root property (20)
  - Solve a quadratic equation with a binomial as the quadratic term using the square root property
  - Solve a quadratic equation where factoring results in a perfect square binomial

### 16.2 Solve Quadratic Equations by Completing the Square

- Solving Quadratic Equations by Completing the Square
  - Complete the square of a binomial expression (20)
  - Solve a quadratic equation with a leading coefficient of 1 by completing the square (20)
  - Solve a quadratic equation with a leading coefficient greater than 1 by completing the square (20)

### 16.3 Solve Quadratic Equations Using the Quadratic Formula

- Solving Quadratic Equations with the Quadratic Formula
  - Solve a quadratic equation using the quadratic formula with 2 real solutions (20)
  - Solve a quadratic equation using the quadratic formula with 1 or 0 real solutions (20)
  - Use the discriminant to predict the number of solutions of a quadratic equation (20)

### 16.4 Solve Applications Modeled by Quadratic Equations

- Problem Solving with Quadratic Equations
  - Solve applications modeled by quadratic equations that may require the quadratic formula
  - Solve geometric applications that may require the quadratic formula

### 16.5 Graphing Quadratic Equations

- Parabolas and Their Properties
  - Graph a quadratic equation by plotting points and recognize the direction a parabola opens
  - Find the axis of symmetry and vertex of a parabola (20)
  - Find the intercepts of a parabola (20)
- Graphing Quadratic Equations
  - Graph a quadratic equation in two variables by using key points
  - Find the maximum or minimum of a quadratic equation and use it in applications (20)