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 - Simplify powers of i

Chapter 17: Quadratic Equations

17.1 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
 - 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

17.2 Solve Quadratic Equations by Completing the Square

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

17.3 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
 - Solve a quadratic equation using the quadratic formula with 1 or 0 real solutions
 - Use the discriminant to predict the number of solutions of a quadratic equation

17.4 Solve Quadratic Equations in Quadratic Form

- Solving Equations by Using Quadratic Methods
 - Solve an equation in quadratic form by using substitution
 - Solve an equation in quadratic form with rational or negative exponents by using substitution

17.5 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

17.6 Graph Quadratic Functions Using Properties

- Parabolas and Their Properties
 - Graph a quadratic function by plotting points and determine the direction a parabola opens
 - Determine the axis of symmetry and vertex of a parabola given a function
 - Determine the intercepts of a parabola given a function
 - Write the equation of a quadratic function given intercepts on a graph
- Graphing Quadratic Functions
 - Graph a quadratic function by finding key points
 - Determine the minimum or maximum of a quadratic function and use it in applications

17.7 Graph Quadratic Functions Using Transformations

- Transformations of Parabolas
 - Graph a quadratic function using a vertical translation
 - Graph a quadratic function using a horizontal translation
 - Graph a quadratic function by compression, stretching, or reflecting
- Graphing Quadratic Functions Using Transformations
 - Rewrite a quadratic in vertex form and graph it using transformations
 - Find a quadratic function given its graph

17.8 Solve Quadratic Inequalities

- Solving Quadratic Inequalities
 - Solve a quadratic inequality graphically
 - Solve a quadratic inequality algebraically

Chapter 18: Exponential and Logarithmic Functions

18.1 Finding Composite and Inverse Functions

- Composite Functions
 - Perform a composition of functions
 - Evaluate a composition of functions for a specific value
 - One-to-One Functions
 - Determine whether a function is one-to-one given a set of ordered pairs
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- Use the horizontal line test to determine whether a graph represents a one-to-one function
 - Inverse Functions
 - Find the inverse of a function given a set of ordered pairs or a graph
 - Verify that two functions are inverses of each other
 - Find the inverse of a function algebraically
- 18.2 Evaluate and Graph Exponential Functions
- Graphing Exponential Functions
 - Graph an exponential function and understand its properties
 - Graph an exponential function using transformations
 - Evaluate an exponential function with base e and understand the natural base
 - Applications with Exponential Functions
 - Use the one-to-one property of exponential equations to solve an exponential equation
 - Use the compound interest formula to find the new value of an account
 - Use the continuously compounding interest formula to find the new value of an account
 - Calculate resultant values using exponential growth and decay models
- 18.3 Evaluate and Graph Logarithmic Functions
- Introduction to Logarithms
 - Convert between exponential and logarithmic form
 - Evaluate a logarithmic function
 - Logarithmic Functions and Applications
 - Graph a logarithmic function and understand its properties
 - Solve a logarithmic equation by rewriting the equation in exponential form
 - Use logarithmic models in applications
- 18.4 Use the Properties of Logarithms
- Understanding the Properties of Logarithms
 - Use basic properties of logarithms and the inverse properties of logarithms
 - Use the product, quotient, and power properties of logarithms
 - Using the Properties of Logarithms
 - Use the properties of logarithms to expand a logarithmic expression
 - Use the properties of logarithms to condense a logarithmic expression
 - Use the change-of-base formula for logarithms
- 18.5 Solve Exponential and Logarithmic Equations
- Solving Logarithmic Equations
 - Use the one-to-one property of logarithmic equations to solve logarithmic equations
 - Use the properties of logarithms to solve logarithmic equations
 - Solving Exponential Equations and Applications
 - Solve exponential equations using logarithms
 - Solve for amounts other than a new balance with the compound or continuously compounding interest formula
 - Use the exponential growth and decay models to find values other than the resultant value

Chapter 19: Conics

19.1 Distance and Midpoint Formulas and Circles

- The Distance and Midpoint Formulas
 - Use the distance formula to find the distance between two points
 - Use the midpoint formula to find the midpoint between two points
- The Equation of Circles
 - Write the standard form of the equation of a circle given its center and radius
 - Write the standard form of the equation of a circle given its center and a point on the circle
 - Graph a circle given its equation in standard form
 - Rewrite the equation of a circle given in general form by completing the square

19.2 Parabolas

- Parabolas as Conic Sections and Applications
 - Graph a vertical parabola given the equation in general or standard form
 - Graph a horizontal parabola given the equation in general form
 - Graph a horizontal parabola given the equation in standard form
 - Solve applications with parabolas

19.3 Ellipses

- Ellipses with Centers at the Origin
 - Graph an ellipse with its center at the origin
 - Find the equation of an ellipse with its center at the origin
- Ellipses with Centers Not at the Origin and Applications
 - Graph an ellipse with its center not at the origin
 - Rewrite the equation of an ellipse given in general form by completing the square
 - Solve applications with ellipses

19.4 Hyperbolas

- Hyperbolas as Conic Sections
 - Graph a hyperbola with its center at the origin
 - Graph a hyperbola with its center not at the origin
 - Rewrite the equation of a hyperbola given in general form by completing the square
- Identifying Conic Sections by Their Equations
 - Identify conic sections by their equations

19.5 Solve Systems of Nonlinear Equations

- Solving Systems of Nonlinear Equations
 - Solve a system of nonlinear equations by graphing
 - Solve a system of nonlinear equations using substitution
 - Solve a system of nonlinear equations using elimination
- Problem Solving with Systems of Nonlinear Equations
 - Use a system of nonlinear equations to solve applications

Chapter 20: Sequences, Series, and the Binomial Theorem

20.1 Sequences

- Introduction to Sequences
 - Write the first few terms of a sequence
 - Find a formula for the general term of a sequence
 - Factorial Notation and Sigma Notation
 - Use factorial notation
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- Find the partial sum
- Use summation notation to write a sum

20.2 Arithmetic Sequences and Series

- Arithmetic Sequences and Series
 - Determine if a sequence is arithmetic and write the first few terms of an arithmetic sequence
 - Find the general term of an arithmetic sequence
 - Find the sum of the first n terms of an arithmetic sequence

20.3 Geometric Sequences and Series

- Geometric Sequences
 - Determine if a sequence is geometric and write the first few terms of a geometric sequence
 - Find the general term of a geometric sequence
- Finite and Infinite Geometric Series and Applications
 - Find the sum of the first n terms of a geometric sequence
 - Find the sum of an infinite geometric series and use infinite geometric series to write a repeating decimal as a fraction
 - Use geometric sequences and series to solve monetary applications including annuities

20.4 Binomial Theorem

- The Binomial Theorem
 - Use Pascal's Triangle to expand a binomial
 - Evaluate a binomial coefficient
 - Use the binomial theorem to expand a binomial
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