

**Trigonometry with Corequisite Support: Targeted Approach | Table of Contents****Chapter 1: Foundations****1.1 Use the Language of Algebra**

- Prime Factorizations, Algebraic Symbols, and Order of Operations
  - Find factors, prime factorizations, and least common multiples (20)
  - Use algebraic symbols and variables (20)
  - Simplify expressions with grouping symbols and exponents using order of operations
- Simplifying and Rewriting Algebraic Expressions
  - Evaluate an expression involving exponents and order of operations
  - Identify and combine like terms
  - Translate an English phrase and word problems into an algebraic expression (40)

**1.2 Integers**

- Absolute Value and Operations on Integers
  - Understand absolute value and simplify expressions involving absolute value with order of operations (40)
  - Add and subtract integers (40)
  - Multiply and divide integers (40)
- Algebraic Expressions with Integers
  - Simplify expressions with integers
  - Evaluate variable expressions with integers (20)
  - Translate an English phrase and word problems involving integers into an algebraic expression (39)

**1.3 Fractions**

- Operations on Fractions
  - Simplify fractions
  - Multiply and divide fractions (20, 20)
  - Add and subtract fractions
- Algebraic Expressions with Fractions
  - Evaluate variable expressions involving fractions
  - Use the order of operations to simplify fractions

**1.4 Decimals**

- Operations on Decimals and Understanding Percents
  - Name and round decimals (20, 20)
  - Evaluate expressions by adding and subtracting decimals (40)
  - Multiply and divide decimals (20, 20)
  - Convert between decimals, fractions, and percents
- Square Roots and the Real Number System
  - Evaluate square roots - IA
  - Identify integers, rational numbers, irrational numbers, and real numbers (20)
  - Locate fractions and decimals on the number line

**1.5 Properties of Real Numbers**

- Using the Properties of Real Numbers
-

- Understand and use the commutative and associative properties
- Use the properties of identity, inverse, and zero (40)
- Simplify an expression using the distributive property (40)

## **Chapter 2: Solving Linear Equations**

### 2.1 Use a General Strategy to Solve Linear Equations

- Solving Linear Equations in One Variable
  - Determine if a value is the solution to an equation (20)
  - Use a general strategy to solve a linear equation (20)
  - Determine if an equation is a contradiction, identity, or conditional equation (40)
- Solving Linear Equations with Fraction and Decimal Coefficients
  - Solve an equation with fractional coefficients (20)
  - Solve an equation with decimal coefficients (20)

### 2.2 Use a Problem Solving Strategy

- An Introduction to Problem Solving
  - Develop a problem-solving strategy for word problems
  - Solve number word problems (20)
- Literal Equations and Using Formulas with Geometry
  - Solve a formula for a specified variable
  - Use a formula to solve a geometric application
  - Use the Pythagorean theorem - IA

### 2.3 Solve Linear Inequalities

- Solving Linear Inequalities
  - Graph an inequality on a number line and use interval notation
  - Solve a linear inequality that requires only one step
  - Solve a linear inequality that requires multiple steps to solve
  - Translate words to an inequality and solve applications with linear inequalities

### 2.4 Solve Compound Inequalities

- Solving Compound Inequalities
  - Solve a compound inequality involving intersections
  - Solve a compound inequality involving unions
  - Solve applications with compound inequalities

### 2.5 Solve Absolute Value Inequalities

- Solving Absolute Value Equations and Inequalities
  - Solve an absolute value equation (20)
  - Solve an absolute value inequality involving "less than" (40)
  - Solve an absolute value inequality involving "greater than"
  - Solve applications with absolute value (5)

## **Chapter 3: Graphs and Functions**

### 3.1 Graph Linear Equations in Two Variables

- The Rectangular Coordinate System and Graphing Linear Equations
    - Plot points on the rectangular coordinate system and identify the quadrants of points
-

- Understand the relationship between solutions to an equation and points on a graph
- Graph linear equations by plotting points
- Graph horizontal and vertical lines
- Graphing Linear Equations with Intercepts
  - Find the intercepts of a line from a graph or an equation (20)
  - Graph a line using intercepts

### 3.2 Slope of a Line

- The Slope of a Line
  - Find the slope of a line using the relationship between rise and run
  - Find the slope of a line given two points on the line (20)
- Graphing Linear Equations with Slope
  - Graph a line given the slope and a point
  - Identify the slope and intercept of a line from its equation and use it to graph the line
  - Graph a linear equation using a variety of methods
- Applications of Slope and Parallel and Perpendicular Lines
  - Interpret applications using graphs and slope
  - Determine if two lines are parallel or perpendicular by comparing slopes (20, 20)

### 3.3 Find the Equation of a Line

- Equations of Lines
  - Find the equation of a line given the y-intercept and the slope (20)
  - Find the equation of a line given a point on the line and the slope (20)
  - Find the equation of a line given two points on the line (20)
- Equations of Parallel and Perpendicular Lines
  - Find the equation of a line parallel to a given line (20)
  - Find the equation of a line perpendicular to a given line (20)

### 3.4 Graph Linear Inequalities in Two Variables

- Graphing Linear Inequalities
  - Verify that a given point is a solution to an inequality in two variables (20)
  - Write a linear inequality given its graph
  - Graph a linear inequality in two variables
  - Solve applications using linear inequalities in two variables (20)

### 3.5 Relations and Functions

- Introduction to Functions
  - Find the domain and range of a relation (20)
  - Determine if a relation is a function given a set of ordered pairs or a mapping (20)
  - Determine if a relation is a function given an equation (20)
- Function Notation
  - Use function notation to find the value of a function given a number (20)
  - Use function notation to find the value of a function given a variable expression (20)

### 3.6 Function Graphs and Transformations

- The Vertical Line Test and Graphs of Functions
    - Use the vertical line test to determine if a graph represents a function
    - Identify graphs of basic functions
    - Read information from the graph of a function
-

- Transformations of Functions
  - Graph functions using vertical and horizontal shifts (5)
  - Graph functions using reflections about the x-axis and the y-axis (5)
  - Graph functions using compressions and stretches (5)
  - Combine transformations (6)

## **Chapter 4: Systems of Linear Equations**

### 4.1 Solve Systems of Linear Equations with Two Variables

- Solving Systems of Linear Equations in Two Variables by Graphing
  - Determine if an ordered pair is a solution of a system of linear equations
  - Solve systems of linear equations by graphing
  - Identify inconsistent and dependent systems of equations with two variables (20)
- Solving Systems of Linear Equations in Two Variables Algebraically
  - Solve a system of linear equations using the substitution method
  - Solve a system of linear equations using the elimination method
  - Choose the most convenient method to solve a system of linear equations (20)

### 4.2 Solve Applications with Systems of Equations

- Systems of Linear Equations in Two Variables and Problem Solving
  - Solve applications of uniform motion using systems of equations
  - Solve geometric application problems using systems of equations
  - Solve word problems and applications using a system of linear equations

### 4.3 Graphing Systems of Linear Inequalities

- Solving Systems of Linear Inequalities
  - Determine if an ordered pair is a solution of a system of linear inequalities
  - Solve systems of linear inequalities by graphing
  - Solve an application using systems of linear inequalities

## **Chapter 5: Polynomials and Polynomial Functions**

### 5.1 Add and Subtract Polynomials

- Adding and Subtracting Polynomials and Polynomial Functions
  - Determine the degree and type of a given polynomial and write it in standard form (20, 20)
  - Add or subtract polynomial expressions (20)
  - Evaluate a polynomial function for a given value (20)
  - Add or subtract polynomial functions (20)

### 5.2 Properties of Exponents and Scientific Notation

- Simplifying Expressions with Properties of Exponents and Negative Exponents
    - Use the product property of exponents to simplify expressions (20)
    - Use the quotient property and the zero property of exponents to simplify expressions (20)
    - Rewrite expressions with positive exponents using the definition of negative exponents (40)
    - Use the power property for exponents and extensions to products and quotients to simplify expressions (40)
    - Simplify exponential expressions by combining all properties (40)
  - Scientific Notation
-

- Convert between decimal notation and scientific notation (20, 20)
- Multiply and divide expressions given in scientific notation (20, 20)

### 5.3 Multiplying Polynomials

- Multiplying Polynomials
  - Multiply monomials and multiply a polynomial by a monomial (20, 20)
  - Multiply two binomials (20)
  - Multiply a polynomial by a polynomial (20)
- Special Products of Binomials and Multiplying Polynomial Functions
  - Use the binomial squares pattern to square a binomial (20)
  - Use the conjugate pairs pattern to multiply conjugates (20)
  - Multiply polynomial functions (20)

### 5.4 Greatest Common Factor and Factor by Grouping

- The Greatest Common Factor and Factoring by Grouping
  - Find the greatest common factor of monomial expressions (20)
  - Factor the greatest common factor from polynomial expressions (20)
  - Factor polynomials by grouping (20)

### 5.5 Factor Trinomials

- Factoring Trinomials
  - Factor a trinomial with a leading coefficient of 1 (20)
  - Factor a trinomial with a leading coefficient of greater than 1 using trial and error (20)
  - Factor a trinomial with a leading coefficient of greater than 1 using the 'ac' method (20)
  - Factor a trinomial in a quadratic form using substitution (40)

### 5.6 Factor Special Products

- Factoring Special Products
  - Factor polynomials using a perfect squares binomial pattern (20)
  - Factor polynomials using a difference of squares pattern (20)
  - Factor a sum or a difference of cubes (20, 20)
  - Factor polynomials by combining the difference of squares and perfect square trinomial patterns

### 5.7 General Strategy for Factoring Polynomials

- Choosing a Factoring Strategy
  - Use a general strategy for factoring polynomials (40)

### 5.8 Polynomial Equations

- Solving Polynomial Equations by Factoring
  - Use the zero product property to solve a factored polynomial equation (20)
  - Solve polynomial equations by factoring (20)
  - Find zeros and intercepts of a polynomial function by factoring (40)
  - Use factoring to solve application problems involving polynomial equations (40)

## **Chapter 6: Rational Expressions and Functions**

### 6.1 Multiply and Divide Rational Expressions

- Domain of Rational Expressions and Simplifying Rational Expressions
    - Determine which values make a rational expression undefined (20)
-

- Simplify rational expressions - IA
- Multiplying and Dividing Rational Expressions
  - Multiply two rational expressions
  - Divide rational expressions, including those written as complex fractions
  - Multiply and divide rational functions

#### 6.2 Add and Subtract Rational Expressions

- Adding and Subtracting Rational Expressions
  - Add or subtract rational expressions with a common denominator or with denominators that are opposites
  - Determine the least common denominator of rational expressions (20)
  - Add or subtract rational expressions with unlike denominators (20)
  - Add and subtract rational functions (20)

#### 6.3 Simplify Complex Rational Expressions

- Simplifying Complex Rational Expressions
  - Simplify complex rational expressions by writing the expression as division (20)
  - Simplify complex rational expressions by using the least common denominator

#### 6.4 Solve Rational Equations

- Solving Rational Equations and Using Rational Functions
  - Solve rational equations (40)
  - Use rational equations to find points on the graph of a rational function (40)
  - Rewrite a rational equation in terms of a specific variable (40)

#### 6.5 Solve Applications with Rational Equations

- Proportions and Similar Figures with Rational Equations
  - Solve problems involving proportions
  - Solve application problems involving similar figures
- Uniform Motion, Work, and Problem Solving
  - Use rational equations to solve uniform motion applications
  - Use rational equations to solve problems involving rates of work
- Variation and Problem Solving
  - Solve problems involving direct variation
  - Solve problems involving inverse variation

#### 6.6 Solve Rational Inequalities

- Solving Rational Inequalities
  - Find the solution set of a rational inequality
  - Solve an inequality with rational functions (40)

### **Chapter 7: Roots and Radicals**

#### 7.1 Simplify Expressions with Roots

- Understanding Radical Expressions
  - Estimate and approximate roots (20)
  - Simplify a variable expression with even or odd roots (20)
  - Simplify a numerical expression with even or odd roots

#### 7.2 Simplify Radical Expressions

---

- Simplifying Radical Expressions
  - Use the product property to simplify radical expressions
  - Use the quotient property to simplify radical expressions

### 7.3 Simplify Rational Exponents

- Rational Exponents
  - Simplify an expression with rational exponents and a numerator of 1 (20)
  - Simplify an expression with rational exponents and a numerator greater than 1 (20)
  - Use the properties of exponents to simplify expressions with rational exponents (40)

### 7.4 Add, Subtract, and Multiply Radical Expressions

- Operations with Radical Expressions
  - Add and subtract radical expressions
  - Multiply radical expressions (40)
  - Use polynomial multiplication to multiply radical expressions (20)
  - Use special product formulas to multiply radical expressions (20, 20)

### 7.5 Divide Radical Expressions

- Dividing Radical Expressions and Rationalizing Denominators
  - Divide radical expressions (20)
  - Rationalize a denominator when the denominator is a monomial
  - Rationalize a denominator when the denominator is a binomial (20)

### 7.6 Solve Radical Equations

- Solving Radical Expressions
  - Solve square root equations containing a single radical (20)
  - Solve a radical equation with a single radical or an equation with a rational exponent (20)
  - Solve a radical equation with two radicals (20)
  - Solve application problems involving radical equations

### 7.7 Use Radicals in Functions

- Radical Functions
  - Evaluate a radical function - IA (20)
  - Find the domain of a radical function
  - Graph a radical function by plotting points and determine its range

### 7.8 Use the Complex Number System

- Introduction to Complex Numbers
  - Evaluate the square root of a negative number and understand the complex number system (20)
  - Add or subtract complex numbers (20)
- Multiplying and Dividing Complex Numbers and Powers of  $i$ 
  - Multiply complex numbers (20)
  - Multiply two complex conjugates (20)
  - Divide complex numbers (20)
  - Simplify powers of  $i$  - IA (20)

## **Chapter 8: Quadratic Equations and Functions**

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

---

- Solving Quadratic Equations Using the Square Root Property
  - Solve quadratic equations using the square root property (20)
  - Solve quadratic equations with a binomial as the quadratic term using the square root property (20)

#### 8.2 Solve Quadratic Equations by Completing the Square

- Solving Quadratic Equations by Completing the Square
  - Find the term that completes the square of a quadratic expression (20)
  - Solve quadratic equations with a leading coefficient of 1 by completing the square (20)
  - Solve quadratic equations with a leading coefficient greater than 1 by completing the square (20)

#### 8.3 Solve Quadratic Equations Using the Quadratic Formula

- Solving Quadratic Equations Using the Quadratic Formula
  - Solve quadratic equations using the quadratic formula with two real solutions (20)
  - Solve quadratic equations using the quadratic formula with one or no real solutions (20, 20)
  - Determine the number and type of solutions of a quadratic equation by using the discriminant (20)

#### 8.4 Solve Quadratic Equations in Quadratic Form

- Solving Equations by Using Quadratic Methods
  - Solve an equation in quadratic form by using substitution (40)
  - Solve an equation in quadratic form with rational or negative exponents by using substitution (40)

#### 8.5 Solve Applications of Quadratic Equations

- Problem Solving with Quadratic Equations
  - Solve an application problem modeled by a quadratic equation
  - Solve a geometric application problem where the quadratic formula may be required

#### 8.6 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 (20)
  - Determine the intercepts of a parabola given a function (20)
- 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 (40)

#### 8.7 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

#### 8.8 Solve Quadratic Inequalities

- Solving Quadratic Inequalities
-



- Solve a quadratic inequality graphically
- Solve a quadratic inequality algebraically (40)

## **Chapter 9: Inverse Functions, Distance and Midpoint Formulas, and Circles**

### 9.1 Finding Composite and Inverse Functions

- Composite Functions
  - Perform a composition of functions (20)
  - Evaluate a composition of functions for a specific value (20)
- One-to-One Functions
  - Determine whether a function is one-to-one given a set of ordered pairs
  - 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 (40)
  - Verify that two functions are inverses of each other (40)
  - Find the inverse of a function algebraically (40)

### 9.2 Distance and Midpoint Formulas and Circles

- The Distance and Midpoint Formulas
    - Use the distance formula to find the distance between two points (20)
    - 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 (20)
    - Write the standard form of the equation of a circle given its center and a point on the circle (20)
    - Graph a circle given its equation in standard form
    - Rewrite the equation of a circle given in general form by completing the square
-