

Module 0 - Pre-Skills

Adding and Subtracting Radicals

Interval Notation

Pythagorean Theorem

Scientific Notation

Set Builder Notation

Simplifying Radicals

Module 1 - Relationships Between Quantities and Reasoning with Equations and Their Graphs

Topic A: Introduction to Functions

- Graphs of Piecewise Linear Functions
- Graphs of Quadratic Functions
- Graphs of Exponential Functions

Topic B: The Structure of Expressions

- Properties of Real Numbers
- Evaluating Algebraic Expressions
- Recognizing Algebraic Expressions
- Translating Verbal Expressions
- Monomial/Polynomial Operations

Topic C: Solving Equations and Inequalities

- Literal Equations
- Determine if a Point is in the Solution Set
- Solving Linear Equations
- Solving Inequalities
- Solving Fractional Equations
- Systems of Equations
- Systems of Inequalities
- Solution Sets for Eq. with "And" or "Or"
- Solve and Graph Ineq. with "And" or "Or"

Topic D: Creating Equations to Solve Problems

- Creating Equations and Inequalities
- Recursive Equations

Module 2 - Descriptive Statistics**Topic A: Shapes and Centers of Distributions**

- Analyzing Statistical Graphs
- Quartiles and Percentiles
- Measures of Central Tendency

Topic B: Describing Variability and Comparing Distributions

- Standard Deviation
- Outliers
- Interquartile Range

Topic C: Categorical Data on 2 Variables

- Collecting Data
- Qualitative vs Quantitative Data
- Univariate vs. Bivariate Data
- Relative Frequency

Topic D: Numerical Data on Two Variables

- Rate of Change
- Scatter Plots and Correlation
- Line of Best Fit
- Interpreting & Analyzing Residuals
- Correlation Coefficient

Module 3 - Linear and Exponential Functions**Topic A: Linear and Exponential Sequences**

- Arithmetic and Geometric Sequences
- Recursive Formulas
- Exponential Growth and Decay

Topic B: Functions and Their Graphs

- Determine if a Relation is a Function
- Determine the Domain and Range
- Function Notation
- Graphing Linear Functions
- Graphing Exponential Functions
- Interpreting the Graphs of a Function

Topic C: Transformations of Functions

- Transformations of Functions

Topic D: Using Functions and Graphs to Solve Problems

- Comparing Linear and Exponential Equations
- Piecewise Functions
- Step Functions

Module 4 - Polynomial and Quadratic Expressions, Equations, and Functions**Topic A: Quadratic Expressions, Equations, and their Connection to Rectangles**

- Factoring
- Advanced Factoring Strategies
- Creating Quadratic Equations
- Determine the Roots
- Vertex/Axis of Symmetry
- Graphing Quadratic Functions From Factored Form
- Solving Quadratic/Linear Systems of Equations
- Interpreting Quadratic Functions

Topic B: Using Different Forms for Quadratic Functions

- Completing the Square
- Quadratic Formula
- Graphing Quadratics from Vertex Form
- Graphing Quadratics from Standard Form

Topic C: Function Transformations and Modeling

- Graphing Cubic Functions
- Graphing Square Root Functions
- Graphing Cube Root Functions
- Transformations of Functions

Module 5 - A Synthesis of Modeling with Equations and Functions**Topic A: Elements of Modeling**

- Analyzing a Graph
- Analyzing a Data Set
- Analyzing a Verbal Description

Topic B: Completing the Modeling Cycle

- Modeling a Context from a Graph
- Modeling from a Sequence
- Modeling a Context from Data
- Modeling a Context from a Verbal Description