

**E<sup>3</sup> STEM ACADEMY**  
Engage-Enhance-Excel  
**ALGEBRA 1 – COURSE OUTLINE**

**Unit 1: Variables and Expressions**

- Variables and Expressions
- Order of Operations
- Evaluating Expressions
- Properties of Real Numbers
- Operations with Real Numbers

**Unit 2: Solving Equations**

- One, Two and Multistep Equations
- Literal Equations
- Unit Conversions

**Unit 3: Solving Inequalities**

- One, Two and Multistep inequalities
- Graphing Inequalities on a number line
- Compound Inequalities
- Absolute Value Inequalities

**Unit 4: Functions**

- Function Notation
- Formalizing Relations and Functions
- Using Graphs to Relate Two Quantities
- Interpreting Expression and Functions in Context
- Writing a Function Rule

**Unit 5: Graphing Linear Equations**

- Coordinate Plane
- Rate of Change
- Slope
- Graphing Linear Equations using
- Slope- intercept
- Point-slope
- Standard Form

**Unit 6: Graphing Nonlinear equations and Inequalities**

- Analyzing Graphs
- Graphing Nonlinear
- Transformations of Functions
- Sequences
- Graphing Inequalities

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## Unit 7: Graphing Systems

- Graphing Linear Systems
- Graphing Linear Inequality Systems
- Parallel and Perpendicular
- Graphing Nonlinear Systems

## Unit 8: Solving Systems Algebraically

- Substitution
- Elimination
- Writing Systems from Context

## Unit 9: Polynomials

- Properties of Exponents
- Operations with Polynomials

## Unit 10: Factoring

- Factor  $ax^2 + bx + c$  for  $a=1$
- Factor  $ax^2 + bx + c$  for  $a \neq 1$
- Differences of Squares
- Perfect Squares
- Differences and Sums of Cubes

## Unit 11: Solving Quadratic Equations

- Finding roots/zeros/x-intercepts
- Completing the square
- Quadratic Formula

## Unit 12: Statistics

- Number Line Plots – Dot Plots, Histograms, Box Plots
- Compare and Interpret Measures of Center and Spread
- Creating Scatterplots
- Lines of Best fit
- Correlation vs. Causation

## Unit 13: Probability, Radicals, and Trigonometry

- Probability
- Radical Expressions and Equations
- Trig Ratios

## Unit 14: Radical Expressions and Equations

- Simplify Radical Expressions
- Solve Radical Equations