

## Algebra 1 Topics

### Solving Linear Equations and Inequalities

Solving Multi-Step Equations/Inequalities  
Equations/Inequalities with Fractions  
Solving Equations/Inequalities with variables on both sides  
Equations/Inequalities with Special Solutions (identity – all real numbers & no solution)  
Decimal/Fraction Equations/Inequalities  
Absolute Value Equations/Inequalities

### Applications of Linear Equations

Writing Equations from words.  
Solving Problems with Two-Step Equations  
Solving Problems with Multi-Step Equations (including perimeter problems)  
Using Proportions to Solve Problems

### Functions

Identify the domain and range  
Determine if a given relationship is a function or not  
Vertical Line Test  
Write a rule for a function  
Function notation  
Applications  
Piecewise Functions

### Graphing Linear Equations/Inequalities

The Coordinate Plane  
Graphing with a t-chart  
Graphing using x & y intercepts  
Slope  
Slope as rate of change  
Graphing all three forms of linear functions: Slope-intercept, Point-slope, Standard form  
Scatterplots? Lines of Fit  
Applications in the Real World  
Writing Equations of lines

## Writing Linear Equations

Slope Intercept form:  $(y = mx+b)$

Slope & a point:  $y - y_1 = m(x - x_1)$

Given two points

Parallel and Perpendicular

Predicting with Linear Models

Writing Linear Equations and problem solving

## Systems of Linear Equations

Solving Systems by **Graphing**

Solving Systems by **Linear Combination (Elimination)**

Solving Systems by **Substitution**

Special Types of Systems

Applications of Systems of Equations

Linear Programming

## Exponents & Exponential Functions

Multiplication Properties of Exponents

Division Properties of Exponents (zero and negative exponents)

Exponential Functions

Applications of Exponential Growth & Decay

## Polynomials & Factoring

Adding & Subtracting Polynomials

Multiplying: monomials; binomials using double distributing; trinomials use double distributive.

Special Products of Polynomials (difference of squares)

Solving using **zero product property**

Factoring Polynomials

Factoring Special Products – difference of squares

Factoring Using Distributive Property (GCF monomial term)

## Quadratic Equations and Functions

Understanding the characteristics of Quadratic Functions

Graphing and Finding Roots or Zeros of Quadratic Functions expressed in **Standard** and **Vertex** Forms

Solve Quadratic Equations by factoring, square roots and the quadratic formula

Applying and using Quadratic Functions

Non-Linear Systems