

Math

Algebra I

1. Demonstrate application of effective problem-solving skills using a variety of strategies.
 - Using manipulatives
 - Drawing a picture/diagram
 - Using guess and check
 - Making an organized list
 - Writing an equation
 - Solving a simpler problem
 - Making a table or chart
 - Looking for a pattern
 - Using logical reasoning
 - Working backward
 - Using a graph
2. Draw logical conclusions using inductive and deductive reasoning to make predictions and to analyze data.
 - Recognizing and applying deductive and inductive reasoning
 - Applying reasoning processes, with special attention to spatial reasoning and reasoning with proportions and graphs
 - Making, evaluating, and validating mathematical conjectures and arguments
 - Determining effects of linear transformations of data
 - Determining effects of outliers
 - Evaluating the appropriateness of a design
3. Interpret and express mathematical ideas orally and in writing.
 - Modeling situations using oral, written, concrete, pictorial, graphical and algebraic methods
 - Reflecting on and clarifying individual thoughts about mathematical ideas and situations
 - Developing common understanding of mathematical ideas, including the role of definitions
 - Using the skills of reading, listening, and viewing to interpret and evaluate mathematical ideas
 - Discussing mathematical ideas and making conjectures and convincing arguments
 - Recognizing the value of mathematical notation and its role in the development of mathematical ideas
4. Calculate multi-step basic operations using whole numbers, integers, fractions, decimals, and variables.
 - Simplifying numerical expressions using properties of real numbers and order of operations, including the use of radicals, exponents, and decimal approximations
 - Simplifying algebraic expressions using properties of real numbers and order of operations, including the use of radicals and exponents

- Performing operations of addition, subtraction, multiplication and division on polynomial expressions
5. Demonstrate use of current technology and adapt to advances in the technological field.
 6. Apply properties of measurement using appropriate tools.
 - Converting from one measurement to another within a system
 - Demonstrating proficiency of perimeter, area, volume, angle, measurement, capacity, weight, and mass
 - Calculating length, midpoint, and slope of a line segment when given coordinates of its endpoints on the Cartesian plane
 - Solving problems algebraically that involve area and perimeter of a polygon, area and circumference of a circle, and volume and surface area of right circular cylinders or right rectangular prisms.
 7. Represent and use numbers and algebraic expressions in a variety of equivalent forms in daily living and mathematical problem situations.
 - Applying ratio, proportion, and percent
 - Using exponents
 - Interpreting scientific notation
 - Factoring binomials, trinomials, and other polynomials using GCF, difference of two squares, perfect square trinomials, and grouping
 8. Demonstrate appropriate use of estimation in problem solving and evaluating solutions.
 - Using a scatterplot and line of best fit or specific line graph to determine relationship existing between two sets of data, including positive, negative, or no relationship
 - Estimating probabilities from given data in lists or graphs
 9. Represent and solve problems using algebraic and/or geometric models and principles.
 - Using appropriate vocabulary and definitions
 - Using spatial models
 - Analyzing linear functions from their equations, slopes, and intercepts.
 1. Finding the slope of a line from its equation or by applying the slope formula
 2. Determining the equations of linear functions given two points, a point and the slope, tables of values, graphs, or ordered pairs
 3. Graphing two-variable linear equations and inequalities on the Cartesian plane
 - Representing linear equations
 - Solving multistep equations and inequalities including linear, radical, absolute value, and literal equations
 - Solving systems of linear equations and inequalities in two variables graphically and algebraically
 - Modeling real-world problems by developing and solving systems of linear equations and inequalities
 - Solving quadratic equations

10. Collect and organize information in order to construct and interpret displays of data.

- Recognizing the persuasive use of statistics
- Identifying characteristics of a data set
- Determining characteristics of a relation, including its domain, range, and whether it is a function, when given graphs, tables of values, mappings, or sets of ordered pairs