

# Grade 9-12 Mathematics Algebra I

## 1<sup>st</sup> Nine Weeks

1. Topic: Problem Solving, Reasoning  
Standard: Solve problems throughout this course that involve:
  - selecting appropriate approaches and tools,
  - using estimating strategies to predict computational results, and
  - judging reasonableness of results.
2. Topic: Problem Solving, Connections  
Standard: Solves problems that link concepts to one another and to practical applications using tools such as scientific or graphing calculators, computers, and manipulatives.
3. Topic: Communication  
Standard: Communicates mathematical ideas by using language and symbolism:
  - reflects upon and clarifies thinking about mathematical ideas and relationships.
  - formulates mathematical definitions and expresses generalizations discovered throughout investigations.
  - expresses mathematical ideas both orally and in writing.
  - interprets written presentations of mathematics, and asks clarifying and extending questions related to mathematics about which they have read or heard.
4. Topic: Language of Algebra: Numbers and Variables  
Standard: Reviews the following algebraic topics:
  - expresses rational numbers in equivalent forms,
  - simplifies numerical and algebraic expressions,
  - evaluates simple algebraic expressions and formulas,
  - translates words into algebraic expressions and equations,
  - represents problem situations with algebraic expressions and equations,
  - identifies subsets of the real numbers, such as whole numbers, integers, rational, and irrational numbers,
  - graphs real numbers on a number line, and
  - adds, subtracts, multiplies, and divides rational numbers, and determines their absolute value.
5. Topic: Connections, Patterns, and Functions  
Standard: Connects patterns to the concept of function and uses patterns, relations, and functions to solve problems.
6. Topic: Patterns and Functions  
Standard: Distinguishes between relations and functions, and identifies the domain and range.
7. Topic: Real Number System  
Standard: Identifies and applies properties of the real number system.
8. Topic: Solving Equations

Standard: Solves linear equations using a variety of methods such as manipulatives and technology.

9. Topic: Solving Equations

Standard: Solves problems involving linear equations.

16. Topic: Linear Equations in Two Variables

Standard: Graphs points (ordered pairs of numbers) in the coordinate plane and identifies the coordinates of given points in the plane.

17. Topic: Linear Equations in Two Variables

Standard: Defines slope as rate of change and calculates the slope given the change of the two variables.

19. Topic: Linear Equations in Two Variables

Standard: Identifies the slope and intercepts of a linear equation.

20. Topic: Linear Equations in Two Variables

Standard: Sketches the graph of a linear equation in two variables given appropriate information, such as slope, x-intercept, y-intercept, two points, and the linear equation.

21. Topic: Linear Equations in Two Variables

Standard: Graphs linear equations in two variables and identifies graphs of lines, including special cases such as vertical, horizontal, parallel, and perpendicular lines.

22. Topic: Linear Equations in Two Variables

Standard: Writes the equation of a line given appropriate information such as slope, x-intercept, y-intercept, two points, and the graph.

25. Topic: Inequalities

Standard: Solves simple and compound inequalities in one variable and graphs the solution set on the number line.

26. Topic: Linear Inequalities

Standard: Solves problems involving linear inequalities and graphs the solution on a coordinate plane.

29. Topic: Variation

Standard: Solves problems involving direct and inverse variation.

30. Topic: Rational Expressions: Algebraic Fractions

Standard: Solves problems involving ratios, proportions, and percents.