



Power Standards for Mathematics

Algebra I

Trimester One

1 Arithmetic Concepts in Algebraic Setting (one cycle)

- *1.1 Properly using the order of operations to evaluate variable expression at the proficient level.
- *1.2 Writing algebraic (symbolic) expressions from verbal description at the proficient level.
- *1.3 Writing verbal and algebraic models to solve problems at the proficient level.
- *1.4 Modeling the four basic operations using real numbers on a number line and/or algebra tiles, at the proficient level.
- *1.5 Correctly applying the rules for calculating with real numbers at the proficient level.

2 Linear Equations (two cycles)

- *2.1 Symbolically model the steps necessary to solve 1-step and multi-step equations at the proficient level.
- *2.2 Applying the algorithm used in solving 1-step and multi-step equations to solve problems involving multiple variables at a proficient level.
- *2.3 Choosing and applying a strategy to solve ratio/rate and proportion problems at a proficient level.

Trimester Two

3 Graph and Interpret Linear Equations (three cycles)

- *3.1 Writing verbal and algebraic models for problems at the proficient level.
- *3.2 Representing a selected function or equation in multiple forms (verbal, data table, graphically, symbolically).
- *3.3 Correctly plotting points on a graph at the proficient level.
- *3.4 Identifying the linear pattern created by the plotted points from a table of values and that a linear function is continuous, at the proficient level.
- *3.5 Applying the shortcut to graph an equation in Slope-intercept Form and equation in Standard Form.
- *3.6 Organize given information and follow appropriate steps to write a linear equations in two variables at the proficient level.

Trimester Three

4 Integer Exponents (one cycle)

- *4.1 Applying the Properties of Exponents, at the proficient level.
- *4.2 Applying “order of operations” to simplify expressions that require the use of more than one of these properties at the proficient level.
- *4.3 Applying scientific notation at the proficient level.

5 Polynomial Operations (one cycle)

- *5.1 Apply the rules of integer operations to variable expressions at the proficient level.

6 Right Triangles (one cycle)

- *6.1 Apply the Pythagorean Theorem and its converse.

Geometry

Trimester One

1 Two and Three Dimensional Measurement (two cycles)

- *1.1 Calculating circumference and area of circles.
- *1.2 Finding radius and diameter given either circumference or area of a circle.
- *1.3 Calculating perimeter and area of polygons.
- *1.4 Calculating missing dimensions of polygons given the perimeter or area.
- *1.5 Solving authentic problems involving perimeter (circumference) and area.
- *1.6 Calculating surface area and volume of three dimensional figures.
- *1.7 Calculating the missing dimensions of three dimensional figures given either the surface area or volume.
- *1.8 Solving authentic problems involving surface area and volume.

2 Basic Elements of Geometry (one cycle)

- *2.1 Identifying patterns.
- *2.2 Making conjectures.
- *2.3 Verifying conjectures.

Trimester Two

3 Line and Angle Relationships (one cycle)

- *3.1 Demonstrating how to bisect a segment and an angle using multiple approaches.
- *3.2 Applying the concept of “sum of the parts equal the whole” to solve problems.
- *3.3 Solving problems involving angle relationships.

4 Parallel and Perpendicular Lines (one cycle)

- *4.1 Verifying that two lines are perpendicular.
- *4.2 Solving problems involving perpendicular line.
- *4.3 Verifying that two lines are parallel.
- *4.4 Solving problems involving parallel lines.

5 Triangle Relationships (one cycle)

- *5.1 Applying theorems to problem-solve.

Trimester Three

6 Congruent and Similar Figures (two cycles)

- *6.1 Applying postulates to verify/prove that triangles are congruent.
- *6.2 Applying proportional reasoning to problem-solve.
- *6.3 Determining similarity by comparing ratios of corresponding sides.

7 Properties of Polygons (one cycle)

- *7.1 Explaining how to determine the sum of the measures of all interior angles of a n-gon.

Algebra II

Trimester One

1. Review and Extend Understanding of Linear Functions (two cycles)

- *1.1 Graphing real numbers on a number line.
- *1.2 Solving simple and compound inequalities; representing solution algebraically and graphically.
- *1.3 Solving linear applications.
- *1.4 Writing equations and inequalities.
- *1.5 Graphing equations and inequalities on the coordinate plan.
- *1.6 Determining if lines are parallel or perpendicular.
- *1.7 Writing the equation of line that is parallel or perpendicular to a given line.
- *1.8 Solving problems involving linear equations/inequalities.
- *1.9 Calculate the “regression equation” using the graphing calculator and/or Excel.
- *1.10 Apply the regression equation to extrapolate and/or interpolate to solve authentic problems.

1. Solve Systems of Linear Equations (one cycle)

- 2.1 Solving systems of equations by graphing method.

Trimester Two

2. Solve Systems of Linear Equations (one cycle)

- 2.2 Solving system of equations/inequalities by algebraic methods.
- 2.3 Writing and solving authentic problems involving two linear inequalities.
- 2.4 Representing solutions in different modes. (Rule of 4)

3. Quadratic Functions and Equations (two cycles)

- *3.1 Graphing quadratic functions.
- *3.2 Applying the quadratic formula and calculating the solution(s).
- *3.3 Analyzing equations and determining the most appropriate method to apply when solving quadratic equations.

Trimester Three

4. Polynomials and Polynomial Functions (two cycles)

- *4.1 Applying the properties of exponents to evaluate expressions, at a proficient level.
- *4.2 Applying the properties of exponents to simplify expressions, at the proficient level.
- *4.3 Determine whether a function is a polynomial function.
- *4.4 Graphing polynomial functions.
- *4.5 Describe polynomial functions in words.
- *4.6 Applying the properties of exponents on polynomial expressions.
- *4.7 Solving authentic problems by analyzing the graph and evaluating the function.