

# Learning Standards for Algebra I

## Chapter 1 – Connections to Algebra

I (the student) will be able to:

- translate words into algebraic expressions
- use the order of operations to solve problems
- evaluate exponential expressions
- replace variables with values and evaluate numerical expressions
- write expressions in exponential or factored form

## Chapter 2 – Properties of Real Numbers

I (the student) will be able to:

- find the absolute value of real numbers
- graph rational numbers on a number line
- determine relationships between rational numbers
- add real numbers
- subtract real numbers
- multiply real numbers
- divide real numbers
- use the distributive property
- collect like terms

## Chapter 3 – Solving Linear Equations

I (the student) will be able to:

- solve equations using addition and subtraction
- solve equations using multiplication and division
- solve multi-step equations
- set up and solve single variable equations from story problems
- simplify equations by eliminating fractions or decimals
- solve equations for a given variable
- find equivalent values for fractions, decimals or percents

- solve problems involving ratios, percents, proportions

## **Chapter 4 – Graphing Linear Equations and Functions**

I (the student) will be able to:

- name the parts of the coordinate plane
- plot points on the coordinate plane
- graph linear equations with a chart
- graph linear equations using x- & y-intercepts
- graph linear equations using slope and y-intercept
- find the slope of a line given 2 points
- find the slope of a line given the graph
- find the slope of a line given the equation
- determine if given equations are functions
- find the domain and range of a function
- draw the mapping of a function

## **Chapter 5 – Writing Linear Equations**

I (the student) will be able to:

- identify the Standard Form of a Linear Equation
- identify the Point-Slope Form of a Linear Equation
- identify the Slope Intercept Form of a Linear Equation
- write a linear equation in the indicated form given the slope and y-intercept
- write a linear equation in the indicated form given two points on the graph
- write a linear equation in the indicated form given the slope and one point on the graph
- write a linear equation in the indicated form given the graph

# **Learning Standards for Algebra I Second Semester**

## **Chapter 6 – Solving and Graphing Linear Inequalities**

I (the student) will be able to:

- Solve and graph linear inequalities.
- Solve and graph compound inequalities.
- Solve and graph absolute value equations and inequalities.
- Graph linear inequalities with two variables.

## **Chapter 7 – Systems of Linear Equations and Inequalities**

I (the student) will be able to:

- Solve systems of linear equations by graphing.
- Solve systems of linear equations by substitution.
- Solve systems of linear equations by elimination.
- Write and solve systems of linear equations.
- Solve systems of linear inequalities by graphing.

## **Chapter 8 – Exponents and Exponential Functions**

I (the student) will be able to:

- Use properties of exponents to simplify exponential expressions.
- Use properties of exponents to multiply and divide exponential expressions.
- Write and use models of exponential growth and decay.

## **Chapter 9 – Quadratic Equations and Functions**

I (the student) will be able to:

- Simplify radical expressions.
- Evaluate radical expressions.
- Graph quadratic functions.
- Solve quadratic equations using the quadratic formula.

## **Chapter 10 – Polynomials and Factoring**

I (the student) will be able to:

- Add and subtract polynomials.
- Multiply polynomials.
- Factor using greatest common factor, difference of two squares, trinomials, and by grouping.
- Solve quadratic equations by factoring.

## **Chapter 11 – Rational Equations and Functions**

I (the student) will be able to:

- Solve problems involving ratios, percents, and proportions.
- Model and solve problems involving direct and inverse variation.

## **Chapter 12 – Radicals and Connections to Geometry**

I (the student) will be able to:

- Simplify radical expressions.
- Add, subtract, multiply, and divide radical expressions.
- Rationalize the denominator in a radical expression.
- Use the Pythagorean theorem and its converse.
- Use the distance and midpoint formulas.