

# Mathematics Power Standards

## Grade 10 Algebra I

 Corvallis School District 509j

**H.1A Algebra and Numeracy: Demonstrate a deep understanding of real numbers and algebraic symbols by fluently creating, manipulating, computing with, and determining equivalent expressions, both numeric and symbolic with fluency.**

- H.1A.1 Compare, order, and locate real numbers on a number line.
- H.1A.2 Evaluate, compute with, and determine equivalent numeric and algebraic expressions with real numbers and variables that may also include absolute value, integer exponents, square roots, pi, and/or scientific notation.
- H.1A.3 Express square roots in equivalent radical form and their decimal approximations when appropriate.
- H.1A.4 Develop, identify, and/or justify equivalent algebraic expressions, equations, and inequalities using the properties of exponents, equality and inequality, as well as the commutative, associative, inverse, identity, and distributive properties.
- H.1A.5 Factor quadratic expressions limited to factoring common monomial terms, perfect-square trinomials, differences of squares, and quadratics of the form  $x^2 + bx + c$  that factor over the integers.

**H.2A Algebra: Use linear equations and functions to represent relationships and solve linear equations, linear inequalities, systems of linear equations, and systems of linear inequalities.**

- H.2A.1 Identify, construct, extend, and analyze linear patterns and functional relationships that are expressed contextually, numerically, algebraically, graphically, in tables, or using geometric figures.
- H.2A.2 Given a rule, a context, two points, a table of values, a graph, or a linear equation in either slope intercept or standard form, identify the slope, determine the x and/or y intercept(s), and interpret the meaning of each.
- H.2A.3 Determine the equation of a line given any of the following information: two points on the line, its slope and one point on the line, or its graph. Also, determine an equation of a new line parallel or perpendicular to a given line, through a given point.
- H.2A.4 Fluently convert among representations of linear relationships given in the form of a graph of a line, a table of values, or an equation of a line in slope-intercept and standard form.
- H.2A.5 Given a linear function, interpret and analyze the relationship between the independent and dependent variables. Solve for x given  $f(x)$  or solve for  $f(x)$  given x.
- H.2A.6 Analyze how changing the parameters transforms the graph of  $f(x) = mx + b$ .
- H.2A.7 Write, use, and solve linear equations and inequalities using graphical and symbolic methods with one or two variables. Represent solutions on a coordinate graph or number line.
- H.2A.8 Solve systems of two linear equations graphically and algebraically, and solve systems of two linear inequalities graphically.

**H.1S Data Analysis: Analyze and interpret empirical data.**

- H.1S.3 Compare and draw conclusions about two or more data sets using graphical displays or central tendencies and range.
- H.1S.4 Use or construct a scatter plot for a given data set, determine whether there is a (n) linear, quadratic, exponential, or no trend. If linear, determine if there is a positive or negative correlation among the data; and, if appropriate, sketch a line of best fit, and use it to make predictions.
- H.1S.5 Construct, analyze, and interpret tables, scatter plots, frequency distributions, and histograms of data sets.

**H.2S Probability: Apply basic principles of probability.**

- H.2S.1 Identify, analyze, and use experimental and theoretical probability to estimate and calculate the probability of simple events.
- H.2S.2 Determine the sample space of a probability experiment.
- H.2S.3 Compute and interpret probabilities for independent, dependent, complementary, and compound events using various methods (e.g., diagrams, tables, area models, and counting techniques).