

Algebra 1 Power Standards

Apply algebraic thinking to problem solving. (throughout the course)

A1.1.A. Select and justify functions and equations to model and solve problems.

A1.1.C. Solve problems that can be represented by a system of two linear equations (or inequalities).

A1.2.D. Determine whether approximations or exact values of real numbers are appropriate, depending on the context, and justify the selection.

A1.6.B. Make valid inferences and draw conclusions based on data.

A1.8.A. Analyze a problem situation and represent it mathematically.

A1.8.C. Evaluate a solution for reasonableness, verify its accuracy, and interpret the solution in the context of the original problem.

A1.8.D. Generalize a solution strategy for a single problem to a class of related problems, and apply a strategy for a class of related problems to solve specific problems.

A1.8.F. Summarize mathematical ideas with precision and efficiency for a given audience and purpose.

A1.8.G. Synthesize information to draw conclusions, and evaluate the arguments and conclusions of others.

A1.8.H. Use inductive reasoning about algebra and the properties of numbers to make conjectures, and use deductive reasoning to prove or disprove conjectures.

Recognize, write, solve, graph, and interpret all aspects of linear equations and functions and simplify and factor polynomials.

A1.1.A. Select and justify functions and equations to model and solve problems.

A1.2.A. Know the relationship between real numbers and the number line, and compare and order real numbers with and without the number line.

A1.2.B. Recognize the multiple uses of variables, determine all possible values of variables that satisfy prescribed conditions, and evaluate algebraic expressions that involve variables.

A1.3.B. Represent a function with a symbolic expression, as a graph, in a table, and using words, and make connections among these representations.

A1.3.C. Evaluate $f(x)$ at a (i.e., $f(a)$) and solve for x in the equation $f(x)=b$. A1.4.A. Write and solve linear equations and inequalities in one variable.

A1.4.D. Write and solve systems of two linear equations (and inequalities*) in two variables.

A1.4.E. Describe how changes in the parameters of linear functions and functions containing an absolute value of a linear expression affect their graphs and the relationships they represent.

A1.7.D. Solve an equation involving several variables by expressing one variable in terms of the others.

Understand the algebraic representation of one and two variable data.

A1.6.A. Use and evaluate the accuracy of summary statistics to describe and compare data sets.

A1.6.E. Describe the correlation of data in scatterplots in terms of strong or weak and positive or negative.

A1.6.C. Describe how linear transformations affect the center and spread of univariate data.

Recognize and solve simple quadratic equations.

A1.1.D. Solve problems that can be represented by quadratic functions and equations.

A1.5.A. Represent a quadratic function with a symbolic expression, (as a graph*), in a table, and with a description, and make connections among the representations.

A1.5.B. Sketch the graph of a quadratic function, describe the effects that changes in the parameters have on the graph, and interpret the x-intercepts as solutions to a quadratic equation.

A1.5.D. Solve quadratic equations that have real roots by completing the square and by using the quadratic formula.

Recognize and use simple exponential functions and sequences.

A1.1.E. Solve problems that can be represented by exponential functions and equations.

A1.7.A. Sketch the graph for an exponential function of the form $y=ab^n$ where n is an integer, describe the effects that changes in the parameters a and b have on the graph, and answer questions that arise in situations modeled by exponential functions.

A1.7.B. Find and approximate solutions to exponential equations.

A1.7.C. Express arithmetic and geometric sequences in both explicit and recursive forms, translate between the two forms, explain how rate of change is represented in each form, and use the forms to find specific terms in the sequence.