

Algebra 1 Content Priority Academic Student Skills

| Standard 1: Algebraic Reasoning: Patterns and Relationships - The student will use expressions and equations to model number relationships. | |
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| A1.1.1a | Equations and Formulas - Translate word phrases and sentences into expressions and equations and vice versa. |
| A1.1.1b | Equations and Formulas - Solve literal equations involving several variables for one variable in terms of the others. |
| A1.1.1c | Equations and Formulas - Use the formulas from measurable attributes of geometric models (perimeter, circumference, area and volume), science, and statistics to solve problems within an algebraic context. |
| A1.1.1d | Equations and Formulas - Solve two-step and three-step problems using concepts such as rules of exponents, rate, distance, ratio and proportion, and percent. |
| A1.1.2a | Expressions - Simplify and evaluate linear, absolute value, rational and radical expressions. |
| A1.1.2b | Expressions - Simplify polynomials by adding, subtracting or multiplying. |
| A1.1.2c | Expressions - Factor polynomial expressions. |
| Standard 2: Relations and Functions - The student will use relations and functions to model number relationships. | |
| A1.2.1a | Relations and Functions - Distinguish between linear and nonlinear data. |
| A1.2.1b | Relations and Functions - Distinguish between relations and functions. |
| A1.2.1c | Relations and Functions - Identify dependent and independent variables, domain and range. |
| A1.2.1d | Relations and Functions - Evaluate a function using tables, equations or graphs. |
| A1.2.2a | Linear Equations and Graphs - Solve linear equations by graphing or using properties of equality. |
| A1.2.2b | Linear Equations and Graphs - Recognize the parent graph of the functions $y = k$, $y = x$, $y = x $, and predict the effects of transformations on the parent graph. |
| A1.2.2c.i | Slope - Calculate the slope of a line using a graph, an equation, two points or a set of data points. |
| A1.2.2c.ii | Slope - Use the slope to differentiate between lines that are parallel, perpendicular, horizontal, or vertical. |
| A1.2.2c.iii | Slope - Interpret the slope and intercepts within the context of everyday life (e.g., telephone charges based on base rate [y-intercept] plus rate per minute [slope]). |
| A1.2.2d | Linear Equations and Graphs - Develop the equation of a line and graph linear relationships given the following: slope and y-intercept, slope and one point on the line, two points on the line, x-intercept and y-intercept, a set of data points. |
| A1.2.2e | Linear Equations and Graphs - Match equations to a graph, table, or situation and vice versa. |
| A1.2.3a | Linear Inequalities and Graphs - Solve linear inequalities by graphing or using properties of inequalities. |
| A1.2.3b | Linear Inequalities and Graphs - Match inequalities (with 1 or 2 variables) to a graph, table, or situation and vice versa. |
| A1.2.4 | Solve a system of linear equations by graphing, substitution or elimination. |
| A1.2.5a* | Nonlinear Functions - Match exponential and quadratic functions to a table, graph or situation and vice versa. |
| A1.2.5b* | Nonlinear Functions - Solve quadratic equations by graphing, factoring, or using the quadratic formula. |

| Standard 3: Data Analysis, Probability and Statistics - The student will use data analysis, probability and statistics to formulate and justify predictions from a set of data. | |
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| A1.3.1a | Data Analysis - Translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages. |
| A1.3.1b | Data Analysis - Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts. |
| A1.3.1c | Data Analysis - Solve two-step and three-step problems using concepts such as probability and measures of central tendency. |
| A1.3.2 | Collect data involving two variables and display on a scatter plot; interpret results using a linear model/equation and identify whether the model/equation is a line best fit for the data. |

Algebra 1 Process Priority Academic Student Skills

| Process Standard 1: Problem Solving | |
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| HS.1.1 | Apply a wide variety of problem-solving strategies (identify a pattern, use equivalent representations) to solve problems from within and outside mathematics. |
| HS.1.2 | Identify the problem from a described situation, determine the necessary data and apply appropriate problem-solving strategies. |
| Process Standard 2: Communication | |
| HS.2.1 | Use mathematical language and symbols to read and write mathematics and to converse with others. |
| HS.2.2 | Demonstrate mathematical ideas orally and in writing. |
| HS.2.3 | Analyze mathematical definitions and discover generalizations through investigations. |
| Process Standard 3: Reasoning | |
| HS.3.1 | Use various types of logical reasoning in mathematical contexts and real-world situations. |
| HS.3.2 | Prepare and evaluate suppositions and arguments. |
| HS.3.3 | Verify conclusions, identify counterexamples, test conjectures, and justify solutions to mathematical problems. |
| HS.3.4 | Justify mathematical statements through proofs. |
| Process Standard 4: Connections | |
| HS.4.1 | Link mathematical ideas to the real world (e.g., statistics helps qualify the confidence we can have when drawing conclusions based on a sample). |
| HS.4.2 | Apply mathematical problem-solving skills to other disciplines. |
| HS.4.3 | Use mathematics to solve problems encountered in daily life. |
| HS.4.4 | Relate one area of mathematics to another and to the integrated whole (e.g., connect equivalent representations to corresponding problem situations or mathematical concepts). |
| Process Standard 5: Representation | |
| HS.5.1 | Use algebraic, graphic, and numeric representations to model and interpret mathematical and real world situations. |
| HS.5.2 | Use a variety of mathematical representations as tools for organizing, recording, and communicating mathematical ideas (e.g., mathematical models, tables, graphs, spreadsheets). |
| HS.5.3 | Develop a variety of mathematical representations that can be used flexibly and appropriately. |