

Algebra 1 BIE Essential Standards

Interim 1 Standards		
Standard	Content	Instr. Days
M.BIE.ALG1.A.SSE. A.2	Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$ , thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$ .	4-6
M.BIE.ALG1.APR. A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	6-8
M.BIE.ALG1.A.CED. A.2	Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	4-6
M.BIE.ALG1.A.CED. A.3	Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. <i>For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.</i>	4-6
M.BIE.ALG1.A.CED. A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. <i>For example, rearrange Ohm's law <math>V = IR</math> to highlight resistance <math>R</math>.</i>	4-6
M.BIE.ALG1.A.REI. A.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	4-6
M.BIE.ALG1.A.REI. B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	4-6
M.BIE.ALG1.A.REI. C.6	Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	4-6
M.BIE.ALG1.A.REI. D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	6-8
M.BIE.ALG1.A.REI. D.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	6-8
M.BIE.ALG1.EE. B.5	Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	2-3

Interim 2 Standards		
Standard	Content	Instr. Days
M.BIE.ALG1.S.ID.C7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	4-6
M.BIE.ALG1.S.ID.C8	Compute (using technology) and interpret the correlation coefficient of a linear fit.	4-6
M.BIE.ALG1.S.ID.C9	Distinguish between correlation and causation.	4-6
M.BIE.ALG1.S.ID. A.1	Represent data with plots on the real number line (dot plots, histograms, and box plots).	4-6
M.BIE.ALG1.S.ID. A.2	Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	4-6
M.BIE.ALG1.S.ID. A.3	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	4-6
M.BIE.ALG1.S.ID. B.5	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	4-6
M.BIE.ALG1.S.ID. B.6	Represent data on two quantitative variables on a scatter plot and describe how the variables are related.	4-6
M.BIE.ALG1.A.REI. D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	4-6
M.BIE.ALG1.A.REI. D.12	Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	4-6
M.BIE.ALG1.A.APR. A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	3-5

Interim 3 Standards		
M.BIE.ALG1.REI. D.11	Explain why the $x$ -coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$ ; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	4-6
M.BIE.ALG1F.IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.</i>	6-8
M.BIE.ALG1F.IF.B.5	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function <math>h(n)</math> gives the number of person-hours it takes to assemble <math>n</math> engines in a factory, then the positive integers would be an appropriate domain for the function.</i>	6-8
M.BIE.ALG1F.IF.B.6	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph	6-8
M.BIE.ALG1F.IF.C.7. a	Graph linear and quadratic functions and show intercepts, maxima, and minima.	3-5
M.BIE.ALG1F.LE.A.2	Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	4-6
M.BIE.ALG1A.APR. A.1	Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	3-5