

Maryland State Core Curriculum
Standards adopted 2007
Algebra I

Strand	Reference	Description	Boardworks High School Algebra presentations
	1.1	The student will analyze a wide variety of patterns and functional relationships using the language of mathematics and appropriate technology.	
	1.1.1	The student will recognize, describe and/or extend patterns and functional relationships that are expressed numerically, algebraically, and/or geometrically.	Linear graphs Slopes and intercepts Graphs of important non-linear functions Functions and relations Sequences and rules Arithmetic sequences Geometric sequences Other types of sequences Non-linear functions Scientific notation Calculations involving scientific notation Exponentials and logarithms Exponential growth and decay Function notation Algebraic fractions Classifying numbers Fractions, decimals and percentages
	1.1.2	The student will represent patterns and/or functional relationships in a table, as a graph, and/or by mathematical expression.	Linear graphs Slopes and intercepts Graphs of important non-linear functions Graphs of quadratic functions Sequences and rules Arithmetic sequences Geometric sequences Exponentials and logarithms Exponential growth and decay

CLG 1 The student will demonstrate the ability to investigate, interpret, and communicate solutions to mathematical and real-world problems using patterns, functions and algebra.

1.1.3	The student will apply addition, subtraction, multiplication, and/or division of algebraic expressions to mathematical and real-world problems.	Operations with polynomials Dividing polynomials The factor theorem Calculating with integers Absolute value functions Factoring Factoring quadratic expressions Quadratic equations and factoring Solving quadratic equations Exponents Zero, negative and fractional exponents Manipulating radicals
1.1.4	The student will describe the graph of a non-linear function and discuss its appearance in terms of the basic concepts of maxima and minima, zeros (roots), rate of change, domain and range, and continuity.	Graphs of important non-linear functions Domain, range and composite functions Graphs of quadratic functions Plotting and sketching graphs Absolute value functions Factoring Factoring quadratic expressions Quadratic equations and factoring Solving quadratic equations
1.2	The student will model and interpret real-world situations using the language of mathematics and appropriate technology.	
1.2.1	The student will determine the equation for a line, solve linear equations, and/or describe the solutions using numbers, symbols, and/or graphs.	Solving linear equations Equations with parentheses and fractions Using equations to solve problems Linear graphs Slopes and intercepts Coordinate geometry The equation of a straight line
1.2.2	The student will solve linear inequalities and describe the solutions using numbers, symbols, and/or graphs.	Inequalities Solving linear inequalities Inequalities and regions Inequalities in two variables

1.2.3	The student will solve and describe using numbers, symbols, and/or graphs if and where two straight lines intersect.	Systems of equations and graphs The elimination method for systems of equations The substitution method for systems of equations Problems leading to systems of equations Slopes and intercepts Parallel and perpendicular lines
1.2.4	The student will describe how the graphical model of a non-linear function represents a given problem and will estimate the solution.	Real life graphs Graphs of important non-linear functions Absolute value functions Graphs of quadratic functions Plotting and sketching graphs Problems leading to quadratic equations Using graphs to solve equations
1.2.5	The student will apply formulas and/or use matrices (arrays of numbers) to solve real-world problems.	Equations, formulas and identities Substituting into formulas Formula problems Rearranging a formula Manipulating formulas Generating formulas
3.1	The student will collect, organize, analyze, and present data.	

CLG 3 The student will demonstrate the ability to apply probability and statistical methods for representing and interpreting data and communicating results, using technology when needed.

3.1.1	The student will design and/or conduct an investigation that uses statistical methods to analyze data and communicate results.	Specifying the problem and planning Types of data Collecting data Methods of sampling part 1 Methods of sampling part 2 Probabilities of single events Probability from experiments Bar graphs Box and whisker plots Histograms Frequency diagrams Cumulative frequency step polygons Cumulative frequency graphs
3.1.2	The student will use the measures of central tendency and/or variability to make informed conclusions.	The mode The mean The median Which measure of central tendency? Standard deviation The range and interquartile range
3.1.3	The student will calculate theoretical probability or use simulations or statistical inferences from data to estimate the probability of an event.	Introduction to probability Probability from experiments Dependent events
3.2	The student will apply the basic concepts of statistics and probability to predict possible outcomes of real-world situations	
3.2.1	The student will make informed decisions and predictions based upon the results of simulations and data from research.	Probability from experiments
3.2.2	The student will interpret data and/or make predictions by finding and using a line of best fit and by using a given curve of best fit.	Non-linear relationships Scatter plots Lines of best fit

	3.2.3	The student will communicate the use and misuse of statistics.	Specifying the problem and planning Types of data Collecting data Methods of sampling part 1 Methods of sampling part 2 Misleading charts Scatter plots Lines of best fit
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