Imagine Math

BUILT for Florida

2016-2017

Florida Learning Pathways

Algebra Readiness & Algebra 1 FSA-EOC

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Algebra Readiness

Florida Learning Pathway

Algebra Readiness Florida Learning Pathway

Unit	Lesson Name	Standard Code	Standard Description
Expressions and Equations	Solving Two-Step Equations	MAFS.8.EE.3.7.b	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
	Solving Equations with the Variable on Both Sides	MAFS.8.EE.3.7.b	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable. b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
	Analyzing Solution Sets to Linear Equations with the Variable on Both Sides	MAFS.8.EE.3.7.a	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
	Interpreting Slope	MAFS.8.EE.2.5	Expressions and Equations. Understand the connections between proportional relationships, lines, and linear equations. 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.
	Slope	MAFS.8.EE.2.6	Expressions and Equations. Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
		MAFS.8.F.1.1	Functions. Define, evaluate, and compare functions. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
		MAFS.8.F.1.2	Functions. Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

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Unit	Lesson Name	Standard Code	Standard Description
Functions	Slope-Intercept Form	MAFS.8.EE.2.6	Expressions and Equations. Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
		MAFS.8.F.2.4	Functions. Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
		MAFS.8.SP.1.3	Statistics and Probability. Investigate patterns of association in bivariate data. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
	Point-Slope Form	MAFS.8.F.1.3	Functions. Define, evaluate, and compare functions. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
		MAFS.8.F.2.4	Functions. Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Building Functions	Direct Variation	MAFS.8.SP.1.2	Statistics and Probability. Investigate patterns of association in bivariate data. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.
		MAFS.8.SP.1.3	Statistics and Probability. Investigate patterns of association in bivariate data. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
Statistics and Probability	Comparing Linear and Nonlinear Data	MAFS.8.SP.1.1	Statistics and Probability. Investigate patterns of association in bivariate data. Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.
		MAFS.8.SP.1.2	Statistics and Probability. Investigate patterns of association in bivariate data. Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

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Unit	Lesson Name	Standard Code	Standard Description
Expressions and Equations	Solving a System of Linear Equations Graphically	MAFS.8.EE.3.8.a	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.
	Solving a System of Linear Equations Algebraically	MAFS.8.EE.3.8.b	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.
	Solving a System of Linear Equations - Applications	MAFS.8.EE.3.8.c	Expressions and Equations. Analyze and solve linear equations and pairs of simultaneous linear equations. Analyze and solve pairs of simultaneous linear equations. c. Solve real-world and mathematical problems leading to two linear equations in two variables. For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.
Functions	Interpreting Graphs of Real-World Situations	MAFS.8.F.2.5	Functions. Use functions to model relationships between quantities. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
	Introduction to Sketching Graphs of Real-World Situations	MAFS.8.F.2.5	Functions. Use functions to model relationships between quantities. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Expressions and Equations	Understanding Properties of Integer Exponents	MAFS.8.EE.1.1	Expressions and Equations. Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 x 3^-5 = 3^-3 = 1/3^3 = 1/27
	Applying Properties of Integer Exponents	MAFS.8.EE.1.1	Expressions and Equations. Work with radicals and integer exponents. Know and apply the properties of integer exponents to generate equivalent numerical expressions. For example, 3^2 x 3^-5 = 3^-3 = 1/3^3 = 1/27
	Understanding Square and Cube Roots	MAFS.8.EE.1.2	Expressions and Equations. Work with radicals and integer exponents. Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational.

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Unit	Lesson Name	Standard Code	Standard Description
The Number System	Classifying and Ordering Real Numbers	MAFS.6.NS.3.7.a	The Number System. Apply and extend previous understandings of numbers to the system of rational numbers. Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. For example, interpret -3 > -7 as a statement that -3 is located to the right of -7 on a number line oriented from left to right.
		MAFS.6.NS.3.7.b	The Number System. Apply and extend previous understandings of numbers to the system of rational numbers. Understand ordering and absolute value of rational numbers. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write -3ºC > -7ºC to express the fact that -3ºC is warmer than -7ºC.
	Approximating Values of Irrational Numbers	MAFS.8.NS.1.1	The Number System. Know that there are numbers that are not rational, and approximate them by rational numbers. Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.
		MAFS.8.NS.1.2	The Number System. Know that there are numbers that are not rational, and approximate them by rational numbers. Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). For example, by truncating the decimal expansion of $\sqrt{2}$, show that $\sqrt{2}$ is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.
Expressions and Equations	Interpreting Numbers Written in Scientific Notation	MAFS.8.EE.1.3	Expressions and Equations. Work with radicals and integer exponents. Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example, estimate the population of the United States as 3 x 10^8 and the population of the world is 7 x 10^9, and determine that the world populations is more than 20 times larger.
	Operations with Numbers in Scientific Notation	MAFS.8.EE.1.4	Expressions and Equations. Work with radicals and integer exponents. Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.

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Unit	Lesson Name	Standard Code	Standard Description
Geometry	Volume of Cylinders	MAFS.8.G.3.9	Geometry. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
		MAFS.912.G-GMD.1.3	Geometry: Geometric Measurement and Dimension. Explain volume formulas and use them to solve problems. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
	Volume of Pyramids and Cones	MAFS.8.G.3.9	Geometry. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
		MAFS.912.G-GMD.1.3	Geometry: Geometric Measurement and Dimension. Explain volume formulas and use them to solve problems. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
	Volume of Spheres	MAFS.8.G.3.9	Geometry. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
		MAFS.912.G-GMD.1.3	Geometry: Geometric Measurement and Dimension. Explain volume formulas and use them to solve problems. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
	Volume of Composite Solids	MAFS.8.G.3.9	Geometry. Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
	Angles in a Polygon	MAFS.7.G.2.5	Geometry. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.
		MAFS.8.G.1.5	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
	Parallel Lines and Transversals	MAFS.8.G.1.5	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.
	Understanding the Pythagorean Theorem	MAFS.8.G.2.6	Geometry. Understand and apply the Pythagorean Theorem. Explain a proof of the Pythagorean Theorem and its converse.
	Pythagorean Theorem - Hypotenuse	MAFS.8.G.2.7	Geometry. Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
		MAFS.912.G-SRT.3.8	Geometry: Similarity, Right Triangles, and Trigonometry. Define trigonometric ratios and solve problems involving right triangles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

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Unit	Lesson Name	Standard Code	Standard Description
Geometry (continued)	Pythagorean Theorem - Legs	MAFS.8.G.2.7	Geometry. Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
		MAFS.912.G-SRT.3.8	Geometry: Similarity, Right Triangles, and Trigonometry. Define trigonometric ratios and solve problems involving right triangles. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
	Pythagorean Theorem - Mixed Problems	MAFS.8.G.2.7	Geometry. Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
	Pythagorean Theorem - Distance Formula	MAFS.8.G.2.7	Geometry. Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
		MAFS.8.G.2.8	Geometry. Understand and apply the Pythagorean Theorem. Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
	Translations	MAFS.8.G.1.2	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
		MAFS.8.G.1.3	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
		MAFS.8.G.1.4	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
	Reflections	MAFS.8.G.1.2	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
		MAFS.8.G.1.3	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
		MAFS.8.G.1.4	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.

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Unit	Lesson Name	Standard Code	Standard Description
Geometry (continued)	Rotations	MAFS.8.G.1.2	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
		MAFS.8.G.1.3	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
		MAFS.8.G.1.4	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
	Composition of Transformations	MAFS.8.G.1.2	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
		MAFS.8.G.1.3	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
		MAFS.8.G.1.4	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
	Dilations	MAFS.8.G.1.3	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
		MAFS.8.G.1.4	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
	Congruence	MAFS.8.G.1.2	Geometry. Understand congruence and similarity using physical models, transparencies, or geometry software. Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.
Statistics and Probability	Patterns of Association in Data	MAFS.8.SP.1.4	Statistics and Probability. Investigate patterns of association in bivariate data. Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?

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Unit	Lesson Name	Standard Code	Standard Description
Expressions and Equations	Slope	MAFS.8.EE.2.6	Expressions and Equations. Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
		MAFS.8.F.1.1	Functions. Define, evaluate, and compare functions. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.
		MAFS.8.F.1.2	Functions. Define, evaluate, and compare functions. Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
Functions	Slope-Intercept Form	MAFS.8.EE.2.6	Expressions and Equations. Understand the connections between proportional relationships, lines, and linear equations. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.
		MAFS.8.F.2.4	Functions. Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
		MAFS.8.SP.1.3	Statistics and Probability. Investigate patterns of association in bivariate data. Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.
	Point-Slope Form	MAFS.8.F.1.3	Functions. Define, evaluate, and compare functions. Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
		MAFS.8.F.2.4	Functions. Use functions to model relationships between quantities. Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

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Unit	Lesson Name	Standard Code	Standard Description
Creating Equations	Writing and Solving Linear Equations in One Variable	MAFS.912.A-CED.1.1	Algebra: Creating Equations. Create equations that describe numbers or relationships. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions.
		MAFS.912.A-CED.1.3	Algebra: Creating Equations. Create equations that describe numbers or relationships. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
	Writing and Graphing Linear Equations in Two or More Variables	MAFS.912.A-CED.1.2	Algebra: Creating Equations. Create equations that describe numbers or relationships. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
	Equations of Parallel and Perpendicular Lines	MAFS.912.A-CED.1.2	Algebra: Creating Equations. Create equations that describe numbers or relationships. Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
	Writing Linear Inequalities in One Variable	MAFS.912.A-CED.1.1	Algebra: Creating Equations. Create equations that describe numbers or relationships. Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions.
		MAFS.912.A-CED.1.3	Algebra: Creating Equations. Create equations that describe numbers or relationships. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
Reasoning with Equations and Inequalities	Solving Linear Inequalities in One Variable	MAFS.912.A-REI.2.3	Algebra: Reasoning with Equations and Inequalities. Solve equations and inequalities in one variable. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
	Solving Linear Equations in One Variable as a Reasoning Process	MAFS.912.A-REI.1.1	Algebra: Reasoning with Equations and Inequalities. Understand solving equations as a process of reasoning and explain the reasoning. 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.
		MAFS.912.A-REI.2.3	Algebra: Reasoning with Equations and Inequalities. Solve equations and inequalities in one variable. Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Creating Equations	Solving Literal Equations	MAFS.912.A-CED.1.4	Algebra: Creating Equations. Create equations that describe numbers or relationships. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. For example, rearrange Ohm's law V = IR to highlight resistance R.

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Unit	Lesson Name	Standard Code	Standard Description
Reasoning with Equations and Inequalities	Solving Systems of Linear Equations	MAFS.912.A-REI.3.5	Algebra: Reasoning with Equations and Inequalities. Solve systems of equations. Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.
		MAFS.912.A-REI.3.6	Algebra: Reasoning with Equations and Inequalities. Solve systems of equations. Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
	Solving Linear Equations Graphically	MAFS.912.A-REI.4.10	Algebra: Reasoning with Equations and Inequalities. Represent and solve equations and inequalities graphically. 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).
		MAFS.912.A-REI.4.11	Algebra: Reasoning with Equations and Inequalities. Represent and solve equations and inequalities graphically. 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.
	Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations	MAFS.912.A-CED.1.3	Algebra: Creating Equations. Create equations that describe numbers or relationships. Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.
		MAFS.912.A-REI.4.12	Algebra: Reasoning with Equations and Inequalities. Represent and solve equations and inequalities graphically. 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.
Interpreting Functions	Function Notation I	MAFS.912.F-IF.1.1	Functions: Interpreting Functions. Understand the concept of a function and use function notation. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).
		MAFS.912.F-IF.1.2	Functions: Interpreting Functions. Understand the concept of a function and use function notation. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
	Function Notation II	MAFS.912.F-IF.1.1	Functions: Interpreting Functions. Understand the concept of a function and use function notation. Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x).
		MAFS.912.F-IF.1.2	Functions: Interpreting Functions. Understand the concept of a function and use function notation. Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.

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Unit	Lesson Name	Standard Code	Standard Description
Interpreting Functions (continued)	Understanding the Domain of a Function	MAFS.912.F-IF.2.5	Functions: Interpreting Functions. Interpret functions that arise in applications in terms of the context. Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.
	Sketching Graphs of Linear Functions from Symbolic Representations	MAFS.912.F-IF-.3.7.a	Functions: Interpreting Functions. Analyze functions using different representations. Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
Arithmetic with Polynomials and Rational Expressions	Simplifying Monomials	MAFS.912.A-SSE.1.1.a	Algebra: Seeing Structure in Expressions. Interpret the structure of expressions. Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients.
	Adding and Subtracting Polynomials	MAFS.912.A-APR.1.1	Algebra: Arithmetic with Polynomials and Rational Expressions. Perform arithmetic operations on polynomials. 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.
	Multiplying Polynomials	MAFS.912.A-APR.1.1	Algebra: Arithmetic with Polynomials and Rational Expressions. Perform arithmetic operations on polynomials. 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.
Seeing Structure in Expressions	Factoring Polynomials	MAFS.912.A-SSE.1.2	Algebra: Seeing Structure in Expressions. Interpret the structure of expressions. Use the structure of an expression to identify ways to rewrite it. For example, see x4- y4 as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
		MAFS.912.A-SSE.2.3.a	Algebra: Seeing Structure in Expressions. Write expressions in equivalent forms to solve problems. Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines.
		MAFS.912.F-IF-.3.8.a	Functions: Interpreting Functions. Analyze functions using different representations. Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.
Arithmetic with Polynomials and Rational Expressions	Multiplying and Dividing Monomials	MAFS.912.A-APR.1.1	Algebra: Arithmetic with Polynomials and Rational Expressions. Perform arithmetic operations on polynomials. 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.

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Unit	Lesson Name	Standard Code	Standard Description
Reasoning with Equations and Inequalities	Problem Solving with Quadratic Functions	MAFS.912.A-REI.2.4.b	Algebra: Reasoning with Equations and Inequalities. Solve equations and inequalities in one variable. Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.
	Using the Quadratic Formula	MAFS.912.A-REI.2.4.b	Algebra: Reasoning with Equations and Inequalities. Solve equations and inequalities in one variable. Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.