Grade 7 PI+ Yearlong Mathematics Map

Resources: Approved from Board of Education

Assessments: District Benchmark Assessments

Common Core State Standards – Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Domain	Cluster	Common Core Standard	Content	Skills	Academic Vocabulary
SP	Investigate patterns of association in bivariate data.	8.SP.3 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.	scatter plot	8.SP.3 Derive the equation of a line of best fit.	
SP	Investigate patterns of association in bivariate data.	8.SP.3 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.	scatter plot	8.SP.3 Explain what the slope of the line means in terms of the given data.	Slope
SP	Investigate patterns of association in bivariate data.	8.SP.3 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.	scatter plot	8.SP.3 Explain what the x and y intercepts of the line mean in terms of the given data.	

Domain	Cluster	Common Core Standard	Content	Skills	Academic Vocabulary
SP	Investigate patterns of association in bivariate data.	8.SP.4 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?	frequency; relative frequency	8.SP.4 Distinguish between the probability of an event and the relative frequency of an event.	probability; frequency; relative frequency
SP	Investigate patterns of association in bivariate data.	8.SP.4 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?	frequency; relative frequency	8.SP.4 For a given set of data, organize frequencies and relative frequencies into two-way tables.	

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SP	Investigate patterns of association in bivariate data.	8.SP.4 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?	frequency; relative frequency	8.SP.4 interpret a two-way table summarizing data on two categorical variables collected from the same subjects.	
SP	Investigate patterns of association in bivariate data.	8.SP.4 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?	frequency; relative frequency	8.SP.4 Calculate relative frequencies and apply these to determine possible association between the two variables.	

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RN	Extend the properties of exponents to rational exponents.	N-RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.	Defining Radicals & Rational Exponents	N-RN.1 Extend the properties of integer exponents to rational exponents to explain the meaning of rational exponents	Rational Exponents, *Base*
RN	Extend the properties of exponents to rational exponents.	N-RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Rewriting Radicals & Rational Exponents	N-RN.2 Rewrite expressions involving radicals and rational exponents using the properites of exponents	*Radical*
RN	Use properties of rational and irrational numbers.	N-RN.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Rational and Irrational Numbers	N-RN.3 Explain why the sum of of two rational and/or irrational numbers is rational or irrational	
RN	Use properties of rational and irrational numbers.	N-RN.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	Rational and Irrational Numbers	N-RN.3 Explain why the product of of two rational and/or irrational numbers is rational or irrational	
SSE	Interpret the structure of expressions.	A-SSE.2 Use the structure of an expression to identify ways to rewrite it. For example, see x4 – y4 as (x2)2 – (y2)2, thus recognizing it as a difference of squares that can be factored as (x2 – y2)(x2 + y2).	Structure of Expressions - rewriting expressions	A-SSE.2 Rewrite an expression based on its structure	
SSE	Write expressions in equivalent forms to solve problems.	A-SSE.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.★	Modeling Equivalent Expressions	A-SSE.3 Choose and produce equivalent expressions to reveal and explain properties of that equivalent expression	Factored Form, Vertex Form, Standard Form, Exponential Function
SSE	Write expressions in equivalent forms to solve problems.	A-SSE.3a Factor a quadratic expression to reveal the zeros of the function it defines.	Quadratics - factoring	A-SSE.3a Factor a quadratic expression to reveal the zeros of the function it defines	Zeros, Factor: defined as factoring completely, zeroes

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SSE	Write expressions in equivalent forms to solve problems.	A-SSE.3b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	Quadratics - completing the square	A-SSE.3b Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines	Completing the square, maximum and minimum
SSE	Write expressions in equivalent forms to solve problems.	A-SSE.3c Use the properties of exponents to transform expressions for exponential functions. For example the expression 1.15t can be rewritten as (1.151/12)12t ≈ 1.01212t to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.	Structure of Expressions - rewriting expressions	A-SSE.3c Transform expressions for exponential functions with the properties of exponents	Transformations, Stretch, Compress
APR	Perform arithmetic operations on polynomials.	A-APR.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.	Polynomial Arithmetic	A-APR.1 Perform addition, subtraction and multiplication on polynomials	Polynomial, Binomial, Trinomial, Monomial, *Like Terms*
APR	Perform arithmetic operations on polynomials.	A-APR.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.	Polynomial Arithmetic	A-APR.1 Compare opertions on polynomials to operations on other systems such as integers	
CED	Create equations that describe numbers or relationships.	A-CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.	Creating Equations and Inequalities in One Variable	A-CED.1 Create equations and inequalities in one variable and use them to solve problems (linear will be done in 6th PIP)	*Inequalities*
CED	Create equations that describe numbers or relationships.	A-CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Creating Equations and Inequalities in Two Variables	A-CED.2 Create equations ***and inequalities*** in two or more variables to represent relationships between quantities (We added the bold/italic because we felt this was missing)	
CED	Create equations that describe numbers or relationships.	A-CED.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	Creating Equations and Inequalities in Two Variables	A-CED.2 Graph equations on coordinate axes with labels and scales	

Domain	Cluster	Common Core Standard	Content	Skills	Academic Vocabulary
CED	Create equations that describe numbers or relationships.	A-CED.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. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Creating Equations and Inequalities	A-CED.3 Represent constraints by equations or inequalities or a by a system of equations or inequalities	*Inequalities, Systems of Equations and Inequalities*
CED	Create equations that describe numbers or relationships.	A-CED.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. For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.	Creating Equations and Inequalities	A-CED.3 Determine solutions that are viable or nonviable options in a modeling context	
CED	Create equations that describe numbers or relationships.	A-CED.4 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.	Equivalent Equations	A-CED.4 Solve an equation or formula for a specific variable	Literal Equation
REI	Solve equations and inequalities in one variable.	A-REI.4a Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x – p)2 = q that has the same solutions. Derive the quadratic formula from this form.	Quadratics - completing the square	A-REI.4a Transform quadratic equations by completing the square	Completing the Square
REI	Solve equations and inequalities in one variable.	A-REI.4b Solve quadratic equations by inspection (e.g., for x2 = 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 ± bi for real numbers a and b.	Quadratics - Solving using the best method	A-REI.4b Determine the appropriate method for solving, then solve the quadratic equation	Quadratic Formula, Completing the Square, Factoring

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REI	Solve equations and inequalities in one variable.	A-REI.4b Solve quadratic equations by inspection (e.g., for x2 = 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 ± bi for real numbers a and b.	Quadratics - Solving using the best method	A-REI.4b Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.	
REI	Solve systems of equations.	A-REI.5 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.	Systems of Linear Equations	A-REI.5 Justify in a system of linear equations that equivalent equations will produce the same solution	*System*
REI	Solve systems of equations.	A-REI.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	Systems of Linear Equations	A-REI.6 Solve systems of linear equations by graphing, substitution, and elimination	Elimination, *System of Equations*
REI	Solve systems of equations.	A-REI.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y = –3x and the circle x2 + y2 = 3.	Systems of Equations	A-REI.7 Solve a system of equations consisting of a linear and quadratic equations by graphing or substitution	*System of Equations*
REI	Represent and solve equations and inequalities graphically.	A-REI.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).	Graphs of Equations	A-REI.10 Explain that a graph represents the set of all solutions to an equation in two variables	*System of Equations*
REI	Represent and solve equations and inequalities graphically.	A-REI.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.★	Systems of Equations	A-REI.11 Solve a system of equations by identifying intersections	*System of Equations*

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REI	Represent and solve equations and inequalities graphically.	A-REI.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.	Graphing Linear Inequalities	A-REI.12 Graph a linear inequality	Feasible region, boundary line.
REI	Represent and solve equations and inequalities graphically.	A-REI.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.	Graphing Linear Inequalities - Systems	A-REI.12 Graph a system of linear inequalities	*System of Inequalities*
IF	Understand the concept of a function and use function notation.	F-IF.1 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).	Functions - Domain and Range	F-IF.1 Recognize if a relation is a function	*Function, Domain, Range, Independent variable, Dependent variable*
IF	Understand the concept of a function and use function notation.	F-IF.1 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).	Functions - Notation	F-IF.1 Write a function using function notation	*Function,*
IF	Understand the concept of a function and use function notation.	F-IF.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Functions - Evaluating	F-IF.2 Evaluate functions for a given domain	*Function, Domain*

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IF	Understand the concept of a function and use function notation.	F-IF.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1.	Functions - Sequences	F-IF.3 Recognize that sequences are functions	*Function*
IF	Interpret functions that arise in applications in terms of the context.	F-IF.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. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.★	Modeling Functions	F-IF.4 Interpret and sketch key features of graphs and tables of linear, quadratic, a functions	End Behavior, Maximum, Minimum, *Intercepts*
IF	Interpret functions that arise in applications in terms of the context.	F-IF.5 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.★	Modeling Functions - Restricted Domains	F-IF.5 Relate the domain of a function to the context of a problem	*Domain*
IF	Interpret functions that arise in applications in terms of the context.	F-IF.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.★	Modeling Functions - Rate of Change	F-IF.6 Calculate and interpret the average rate of change of a function	
IF	Analyze functions using different representations.	F-IF.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.★	Modeling Functions Graphically	F-IF.7 Graph functions that are in symbolic notation	

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IF	Analyze functions using different representations.	F-IF.7a Graph linear and quadratic functions and show intercepts, maxima, and minima.	Modeling Functions Graphically	F-IF.7a Graph linear and quadratic functions	Standard Form (linear), Point Slope Form, Standard Form (quadratic), Vertex Form, Factored Form, Parabola, Vertex, Axis of Symmetry, Maximum, Minimum
IF	Analyze functions using different representations.	F-IF.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Modeling Functions Graphically	F-IF.7b Graph absolute value functions	*Absolute Value*
IF	Analyze functions using different representations.	F-IF.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Modeling Functions Graphically	F.IF.7b Graph step functions	Step Function,
IF	Analyze functions using different representations.	F-IF.7b Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Modeling Functions Graphically	F-IF.7b Graph piece-wise functions	Piecewise functions, Compound Inequality (in reference to the domain of a piecewise function)
IF	Analyze functions using different representations.	F-IF.7e Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	linear and exponential	F-IF.7e Graph exponential functions of the form y = a(b^x) and identify intercepts and end behavior.	Exponential Functions
IF	Analyze functions using different representations.	F-IF.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	Functions - Representations	F-IF.8 Write a function in different but equivalent forms to reveal and explain different properties of the function	Standard Form (Linear), Point Slope Form, Standard Form (Quadratic), Vertex Form, Factored Form
IF	Analyze functions using different representations.	F-IF.8a 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.	Functions-Representations	F-IF.8a Factor and complete the square in a quadratic function to identify zeros, extreme values, and symmetry of the graph	Factor, Complete the Square, Zeros, Maximum, Minimum

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IF	Analyze functions using different representations.	F-IF.8a 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.	Functions - Analyzing Representations	F-IF.8a Interpret the zeros, extreme values, and symmetry of the graph in terms of a context	Zeros, Maximum, Minimum
IF	Analyze functions using different representations.	F-IF.8b Use the properties of exponents to interpret expressions for exponential functions. For example, identify percent rate of change in functions such as y = (1.02)t, y = (0.97)t, y = (1.01)12t, y = (1.2)t/10, and classify them as representing exponential growth or decay.	Functions - Analyzing Representations	F-IF.8b Interpret expressions for exponential functions using the properties of exponents	Exponential Functions
IF	Analyze functions using different representations.	F-IF.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.	Analyzing Function Representations	F-IF.9 Compare properties of two functions each represented in a different way	
BF	Build a function that models a relationship between two quantities.	F-BF.1 Write a function that describes a relationship between two quantities.★	Building Functions - relationships between two quantities	F-BF.1 Write a linear function that describes a relationship between two quantities	Standard Form (linear), Point Slope Form
BF	Build a function that models a relationship between two quantities.	F-BF.1a Determine an explicit expression, a recursive process, or steps for calculation from a context.	Building Functions - relationships between two quantities	F-BF.1a Determine an explicit expression, a recursive process, or steps for calculation from a context	Recursive process, Explicit Formula
BF	Build a function that models a relationship between two quantities.	F-BF.1b Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.	Building Functions - relationships between two quantities	F-BF.1b Build standard function types using arithmetic operations	Constant, Linear, Quadratic and Exponential terms and functions.

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BF	Build a function that models a relationship between two quantities.	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	Building Functions - relationships between two quantities	F-BF.2 Write arithmetic sequences both recursively and with an explicit formula	Arithmetic sequences, Recursive formula, explicit formula
BF	Build a function that models a relationship between two quantities.	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	Building Functions - relationships between two quantities	F-BF.2 Apply arithmetic sequences to model situations	Arithmetic sequences, Geometric sequences,
BF	Build a function that models a relationship between two quantities.	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	Building Functions - relationships between two quantities	F-BF.2 Write geometric sequences both recursively and with an explicit formula	Arithmetic sequences, Geometric sequences,
BF	Build a function that models a relationship between two quantities.	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	Building Functions - relationships between two quantities	F-BF.2 Apply geometric sequences to model situations	Arithmetic sequences, Geometric sequences,
BF	Build new functions from existing functions.	F-BF.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.★	Building Functions - relationships between two quantities	F-BF.2 Translate between arithmetic and geometric sequences	Arithmetic sequences, Geometric sequences,
BF	Build new functions from existing functions.	F-BF.3 Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Building Functions - from existing functions	F-BF.3 Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k	Transformations, Stretch, Compress

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BF	Build new functions from existing functions.	F-BF.3 Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Building Functions - from existing functions	F-BF.3 Find the value of k given the graphs. (See previous skill statement)	
BF	Build new functions from existing functions.	F-BF.3 Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	Building Functions - from existing functions	F-BF.3 Experiment with cases and illustrate an explanation of the effects on the graph using technology	Transformations, Stretch, Compress
BF	Build new functions from existing functions.	F-BF.4 Find inverse functions.	Building Functions - Inverse Functions	F-BF.4 Build inverse functions	Inverse of a Function
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-BF.4a Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. For example, f(x) =2 x3 or f(x) = (x+1)/(x–1) for x ≠ 1.	Solving with Inverse Funtion	F-BF.4a For a simple function f that has an inverse, solve an equation of the form f(x) = c by writing an expression for the inverse	Inverse of a Function
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.	Compare Linear and Exponential Models	F-LE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions	Function, Exponential Function

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LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.1a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	Compare Linear and Exponential Models	F-LE.1a Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals	Exponential Functions
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.1b Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.	Compare Linear and Exponential Models	F-LE.1b Recognize when one quantity changes at a constant rate per unit interval	
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.1c Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	Compare Linear and Exponential Models	F-LE.1c Recognize when a quantity grows or decays by a constant percent rate per unit interval	
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.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).	Construct Linear Models	F-LE.2 Construct linear functions, given a graph, a description of a relationship, or two input-output pairs	Linear Functions
LE	Construct and compare linear, quadratic, and exponential models and solve problems.	F-LE.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).	Construct Exponential Models	F-LE.2 Construct exponential functions, given a graph, a description of a relationship, or two input-output pairs	Exponential Functions
LE	Interpret expressions for functions in terms of the situation they model.	F-LE.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	Compare Linear and Exponential Models	F-LE.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or increasing any polynomial function	

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LE	Interpret expressions for functions in terms of the situation they model.	F-LE.5 Interpret the parameters in a linear or exponential function in terms of a context.	Functions - Interpreting Expressions	F-LE.5 Interpret the parameters in a linear or exponential function in terms of a context	*Term*
ID	Summarize, represent, and interpret data on a single count or measurement variable	S-ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	One Variable Data - Representations	S-ID.1 Represent data with plots on the real number line	
ID	Summarize, represent, and interpret data on a single count or measurement variable	S-ID.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.	One Variable Data - Comparing Shape, Center and Spread	S-ID.2 Compare the center and spread of two or more different data sets with the appropriate statistics based on the shape of the data distribution	Standard Deviation, *Interquartile Range*
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	One Variable Data - Comparing Shape, Center and Spread	S-ID.3 Explain differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points	Spread, Shape, Center, *Outliers*
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.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.	Two Variable Data - Two Way Frequency Tables	S-ID.5 Summarize categorical data for two categories in two way frequency tables	Two Way Frequency Tables
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.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.	Two Variable Data - Two Way Frequency Tables	S-ID.5 Recognize and explain relative frequencies, possible associations and trends in the context of the data	Relative Frequencies

Domain	Cluster	Common Core Standard	Content	Skills	Academic Vocabulary
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	Two Variable Data - Representations	S-ID.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related	Linear, Positively or Negatively associated (????)
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Two Variable Data - Fitting functions to data	S-ID.6a Fit a linear or exponential function to the data	Regression Equation
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6a Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.	Two Variable Data - Fitting functions to data	S-ID.6a Solve problems in the context of the data with a function fitted to the data	
ID	Summarize, represent, and interpret data on two categorical and quantitative variables	S-ID.6b Informally assess the fit of a function by plotting and analyzing residuals.	Two Variable Data - Fitting functions to data	S-ID.6b Informally assess the fit of a function by plotting and analyzing residuals	Residuals
ID	Interpret linear models	S-ID.6c Fit a linear function for a scatter plot that suggests a linear association.	Two Variable Data - Fitting functions to data	S-ID.6c (Combined with S-ID.6a)	
ID	Interpret linear models	S-ID.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Interpret Linear Models	S-ID.7 Interpret the slope and the intercept of a linear model in the context of the data	
ID	Interpret linear models	S-ID.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.	Interpret Linear Models	S-ID.8 Compute, using technology, and interpret the correlation coefficient of a linear fit	Correlation Coefficient
ID	Interpret linear models	S-ID.9 Distinguish between correlation and causation.	Interpret Linear Models	S-ID.9 Distinguish between correlation and causation	Correlation, Causation