Grade/Course	Domain	Cluster	Standard	Suggested Change
Integrated I	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	M1.N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	M1.N.Q.A.1 Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays. b. Use appropriate quantities in formulas, converting units as necessary. c. Define and justify appropriate quantities within a context for the purpose of modeling. d. Choose an appropriate level of accuracy when reporting quantities. [S & C: Apply this standard to any real-world problems studied within the scope of this course.]
Integrated I	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	M1.N.Q.A.2 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	remove
Integrated I	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	M1.N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	remove
Integrated I	Number and Quantity (Matrix Quantities (M))	A. Perform operations on matrices and use matrices in applications.		M1.N.M.A.1 Use matrices to represent data in a real-world context. Interpret rows, columns, and dimensions of matrices in terms of the context.*
Integrated I	Number and Quantity (Matrix Quantities (M))	A. Perform operations on matrices and use matrices in applications.		M1.N.M.A.2 Perform operations on matrices in a real-world context.* a. Multiply a matrix by a scalar to produce a new matrix. b. Add and/or subtract matrices by hand and using technology. c. Multiply matrices of appropriate dimensions, by hand in simple cases and using technology for more complicated cases. d. Describe the roles that zero matrices and identity matrices play in matrix addition and multiplication, recognizing that they are similar to the roles of 0 and 1 in the real number system. [S & C: Part C: each matrix used as a factor is limited to no more than six elements when multiplying by hand.]
Integrated I	Number and Quantity (Matrix Quantities (M))	A. Perform operations on matrices and use matrices in applications.	M1.N.M.A.3 Describe the roles that zero matrices and identity matrices play in matrix addition and multiplication, recognizing that they are similar to the roles of 0 and 1 in the real number system.	
Integrated I	Number and Quantity (Matrix Quantities (M))	A. Perform operations on matrices and use matrices in applications.		M1.N.M.A.4 Create and use augmented matrices to solve systems of linear equations in real-world contexts, by hand and using technology.* [S & C: When solving by hand, limit system size to at most two unknowns, and when solving by technology, limit system size to at most three unknowns.]

Integrated I	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	M1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	M1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [S & C: For example, one train can transport A cubic feet, and a second train can transport B cubic feet. The first train makes x trips to a job site, while the second makes y trips. Interpret the expression Ax+By in terms of the context.For example, interpret P(1 + r)^n as the product of P and a factor not depending on P. Tasks are limited to linear and exponential expressions, including related numerical expressions.]
Integrated I	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	M1. A.SSE.A.2 Use the structure of an algebraic expression to identify ways to rewrite it.	
Integrated I	Algebra (Seeing Structure in Expressions (A.SSE))	B. Write expressions in equivalent forms to solve problems.	M1.A.SSE.B.2 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Use the properties of exponents to rewrite exponential expressions.	remove
Integrated I	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships	M1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	M1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* [S & C: Tasks are limited to equations or inequalities of these types: linear and absolute value.]
Integrated I	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships	M1.A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.	M1.A.CED.A.2 Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions.* [S & C: Tasks are limited to linear, absolute value, and exponential equations of two variables.]
Integrated I	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships	M1.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.	M1.A.CED.A.3 Create individual and systems of equations and/or inequalities to represent constraints in a contextual situation, and interpret solutions as viable or non-viable.* For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.

Integrated I	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships	M1.A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	M1.A.CED.A.4 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.* [S & C: Tasks are limited to linear and absolute value equations. For example, rearrange the formula for the perimeter of a rectangle to isolate the length or width.]
Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.		M1.A.REI.A.1 Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. [S & C: Tasks are limited to linear and absolute value equations.]
Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.	M1.A.REI.A.1 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	M1.A.REI.B.2 Solve linear and absolute value equations and inequalities in one variable. a. Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. b. Solve absolute value equations and inequalities in one variable. Represent solutions algebraically and graphically. [S & C: Equations and inequalities should include integer, rational, and/or irrational coefficients. If coefficients are irrationnal, rationalization of a denominator is not required. Tasks may or may not have a real-world context.]
Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	M1.A.REI.B.2 Write and solve a system of linear equations in context.	M1.A.REI.C.3 Write and solve a system of linear equations in a real-world context.* [S & C: When solving algebraically and graphically, tasks are limited to systems of at most two equations and two variables. When solving using technology, tasks are limited to systems of at most three equations and three variables. For example, use a system of equations to find the vertices of a triangle defined by three lines.]
Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	M1.A.REI.C.3 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).	M1.A.REI.D.4 no change, except code
Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	M1.A.REI.C.4 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 approximate solutions using technology.	M1.A.REI.D.5 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 approximate solutions by graphing the functions or making a table of values, using technology when appropriate. [S & C: When finding solutions approximately, students may be expected to produce graphs of functions that are linear, but may be given graphs of other function types.]

Integrated I	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	M1.A.REI.C.5 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.	M1.A.REI.D.6 Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
Integrated I	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.	M1.F.IF.A.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).	M1.F.IF.A.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).
Integrated I	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.	M1.F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	M1.F.IF.A.2 Use function notation.* a. Use function notation to evaluate functions for inputs in their domains, including functions of two variables. b. Interpret statements that use function notation in terms of a context. [S&C: Limit to functions of one variable.]
Integrated I	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.	new standard	M1.F.IF.A.3 Understand geometric formulas as functions. [S&C: Limit to linear functions. For example, see geometric formulas such as interior angle sum, perimeter of a square, and circumference of a circle as linear functions.]
Integrated I	Funtions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M1.F.IF.B.3 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.	M1.F.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.* [S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. Tasks are limited to linear functions and exponential functions with integer exponents.]
Integrated I	Funtions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M1.F.IF.B.4 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	M1.F.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the context of the function it models.* [S&C: 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. Tasks are limited to linear functions and exponential functions with integer exponents.]

Integrated I	Funtions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M1.F.IF.B.5 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.	Remove. Function types are limited in this course.
Integrated I	Funtions (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	M1.F.IF.C.6 Graph functions expressed symbolically and show key features of the graph, by hand and using technology. a. Graph linear functions and show it's intercepts.	Remove. Function types are very limited in this course.
Integrated I	Funtions (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	M1.F.IF.C.7 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	M1.F.IF.C.8 Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions. a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways. b. Compare properties of the same function on two different intervals or represented in two different ways. [S&C: Functions may or may not have a real-world context. Tasks are limited to linear functions and exponential functions with integer exponents.]
Integrated I	Functions (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	M1.F.BF.A.1 Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	M1.F.BF.A.1 Build a function that describes a relationship between two quantities.* a. Determine steps for calculation, a recursive process, or an explicit expression from a context. [S&C: Tasks are limited to linear and exponential relationships. For example, create a function from a visual pattern and describe how each component of their function relates to characteristics of figures in the pattern.]
Integrated I	Functions (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	M1.F.BF.A.2 Write arithmetic and geometric sequences with an explicit formula and use them to model situations.	M1.F.BF.A.2 Define sequences as functions, including recursive definitions, whose domain is a subset of the integers. Write explicit and recursive formulas for arithmetic and geometric sequences in context and connect them to linear and exponential functions.*
Integrated I	Functions (Building Functions (F.BF))	B. Build new functions from existing functions	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 graphs.	Remove. No functions that are very applicable.

Integrated I	Functions (Linear and Exponential Models (F.LE))	A. Construct and compare linear and exponential models and solve problems.	M1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Recognize that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.	M1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Know that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.
Integrated I	Functions (Linear and Exponential Models (F.LE))	A. Construct and compare linear and exponential models and solve problems.	M1.F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input-output pairs.	Keep as is
Integrated I	Functions (Linear and Exponential Models (F.LE))	A. Construct and compare linear and exponential models and solve problems.	M1.F.LE.A.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly.	Remove
Integrated I	Functions (Linear and Exponential Models (F.LE))	B. Interpret expressions for functions in terms of the situation they model.	M1.F.LE.B.4 Interpret the parameters in a linear or exponential function in terms of a context.	M1.F.LE.B.4 Interpret the parameters in a linear or exponential function in terms of a context.* [S&C: For example, the total cost of an electrician who charges a flat fee for a house call and an hourly rate is given by the function y = 50x + 35. Interpret the value 35 as the flat fee and the value of 50 as the hourly rate. For example, a population is modeled by a function y = 30000 (1.04)x. Interpret the value 30000 as the initial population and 1.04 as a 4% increase per year.]
Integrated I	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	M1.G.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, plane, distance along a line, and distance around a circular arc.	remove from course

Integrated I	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	M1.G.CO.A.2 Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).	M1.G.CO.A.1 Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not, by hand for basic transformations and using technology for more complex cases. [S & C: For example, a translation will preserve both distances and angle measures associated with a figure, a compression based around a point preserves angle measures but not distances, and a horizontal stretch does not preserve either except in the cases of a vertical line, ray, or line segment. Limit the comparison of transformations to figures graphed on a coordinate plane.]
Integrated I	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	M1.G.CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry the shape onto itself.	M1.G.CO.A.2 Given a rectangle, parallelogram, trapezoid, or regular polygon, determine the transformations that carry the shape onto itself and describe them in terms of the symmetry of the figure. [S & C: Limit transformations to figures graphed on a coordinate plane.]
Integrated I	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	M1.G.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	revise and move to IM2
Integrated I	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	M1.G.CO.A.5 Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another.	revise and move to IM2
Integrated I	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	M1.G.CO.B.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to determine informally if they are congruent.	revise and move to IM2
Integrated I	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	M1.G.CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	revise and move to IM2
Integrated I	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	M1.G.CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, AAS, and SSS) follow from the definition of congruence in terms of rigid motions.	revise and move to IM2

Integrated I	Geometry (Congruence (G.CO))	B. Use geometric theorems to justify relationships.	M1.G.CO.C.9 Prove theorems about lines and angles.	M1.G.CO.B.3 Use definitions and theorems about lines and angles to solve problems and to justify relationships in geometric figures. [S & C: Justification may take a variety of forms. Students should be introduced to the terminology of "congruence" when measuring angles and segment lengths. For example, tasks may include, but are not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.]
Integrated I	Geometry (Congruence (G.CO))	B. Use geometric theorems to justify relationships.	M1.G.CO.C.10 Prove theorems about triangles.	M1.G.CO.B.4 Use definitions and theorems about triangles to solve problems and to justify relationships in geometric figures. [S & C: Justification may take a variety of forms. For example, tasks may include, but are not limited to: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent.]
Integrated I	Geometry (Congruence (G.CO))	B. Use geometric theorems to justify relationships.	M1.G.CO.C.11 Prove theorems about parallelograms.	revise and move to IM2
		C. Perform geometric constructions.	new standard	M1.G.CO.C.5 Perform formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). [S & C: Constructions are limited to: bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.]
			new standard	M1.G.CO.C.6 Use geometric constructions to solve geometric problems in context, by hand and using technology.* [S & C: For example, find the point equidistant from three given points by constructing two perpendicular bisectors and locating their point of intersection.]

Integrated I	Geometry (Geometric Properties with Equatior	A. Use coordinates to solve problems and justify simply geometric theorems algebraically.		M1.G.GPE.A.1 Use coordinates to solve problems and justify geometric relationships algebraically. S&C: For example, tasks could include, but are not limited to: determine whether four points in the coordinate plane are the vertices of a rectangle, trapezoid, rhombus, square, or parallelogfram; determine whether three points in the coordinate plane are the vertices of a scalene, isosceles, equilateral, or right triangle; determine the median of a triangle using the midpoint formula; given the coordinates of the center of a circle and a point on the circle, find the area and/or circumference of the circle.
Integrated I	Geometry (Geometric Properties with Equatior	A. Use coordinates to solve problems and justify simply geometric theorems algebraically.		M1.G.GPE.A.2 Use the slope criteria for parallel and perpendicular lines to solve problems and to justify relationships in geometric figures. S&C: For example, tasks could include, but are not limited to: justify why two lines are parallel, perpendicular, or neither. Create parallel and perpendicular lines to solve problems in context (e.g., given three non-collinear points in the plane, find the coordinates of a fourth point so that the four points are the vertices of a rectangle).
Integrated I	Geometry (Geometric Properties with Equatior	A. Use coordinates to solve problems and justify simply geometric theorems algebraically.		M1.G.GPE.A.3 Understand the relationship between the Pythagorean Theorem and the distance formula and use an efficient method to solve problems on the coordinate plane. S&C: For example, compute the radius of a circle given a center and point on the circle, perimeters of polygons, and areas of triangles and quadrilaterals. Finding the area of a triangle is limited to cases when the triangle is either right or contains a side that is horizontal or vertical.
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	M1.S.ID.A.1 Represent single or multiple data sets with dot plots, histograms, stem plots (stem and leaf), and box plots.	
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	M1.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.	
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	M1.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).	

Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable. *rename to B and revise: Summarize, represent, and interpret data on two categorical and quantitative variables.*	M1.S.ID.B.4 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. 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. b. Fit a linear function for a scatter plot that suggests a linear association.	M1.S.ID.A.1 Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.* S&C: Tasks are limited to linear functions.
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Interpret linear models.	M1.S.ID.C.5 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	M1.S.ID.B.2 Interpret the rate of change and the constant term of a linear model in the context of the data.*
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Interpret linear models.	M1.S.ID.C.6 Compute (using technology) and interpret the correlation coefficient of a linear fit.	M1.S.ID.B.3 Use technology to compute the correlation coefficient of a linear model; interpret the correlation coefficient in the context of the data.*
Integrated I	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Interpret linear models.	M1.S.ID.C.7 Distinguish between correlation and causation.	M1.S.ID.B.4 Explain the difference between correlation and causation. Recognize situations where an additional factor may be impacting correlated data.*

Grade/Course	Domain	Cluster	Standard	Suggested Change
Integrated II	Number and Quantity (The Real Number System (N.RN))	A. Extend the properties of exponents to rational exponents.	M2.N.RN.A.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.	M2.N.RN.A.1 Extend the properties of integer exponents to rational exponents. a. Develop the meaning of rational exponents by applying the properties of integer exponents. b. Explain why x^(1/n) can be written as the nth root of x. c. Rewrite expressions involving radicals and rational exponents using the properties of exponents. [S&C: Part B: for example, we define 5^1/3 to be the cube root of 5 because we want (5^1/3)3 = 5^(1/3)3 to hold, so (5^1/3)3 must equal 5.]
Integrated II	Number and Quantity (The Real Number System (N.RN))	A. Extend the properties of exponents to rational exponents.	M2.N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Combine with RN.A.1
Integrated II	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	M2.N.Q.A.1 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	M2.N.Q.A.1 Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays. b. Use appropriate quantities in formulas, converting units as necessary. c. Define and justify appropriate quantities within a context for the purpose of modeling. d. Choose an appropriate level of accuracy when reporting quantities. [S & C: Apply this standard to any real-world problems studied within the scope of this course.]
Integrated II	Number and Quantity (The Complex Number System (N.CN))	A. Perform arithmetic operations with complex numbers.	M2.N.CN.A.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form a + bi with a and b real.	move to PC

Integrated II	Number and Quantity (The Complex Number System (N.CN))	A. Perform arithmetic operations with complex numbers.	M2.N.CN.A.2 Know and use the relation i2 = –1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	move to PC
Integrated II	Number and Quantity (The Complex Number System (N.CN))	B. Use complex numbers in polynomial identities and equations.	M2.N.CN.B.3 Solve quadratic equations with real coefficients that have complex solutions.	move to PC
Integrated II	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	M2.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context. a. Interpret complicated expressions by viewing one or more of their parts as a single entity.	M2.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [S & C: For example, interpret P(1 + r)^n as the product of the initial value P and the growth rate after the first n years. View (1000 - 70x)(0.5 + 0.1x) as the product of the number of items sold and the cost of each item, which produces the profit, where x is the number of 10-cent price increases. Tasks are limited to exponential and quadratic expressions.
Integrated II	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	M2.A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.	Remove.
Integrated II	Algebra (Seeing Structure in Expressions (A.SSE))	B. Write expressions in equivalent forms to solve problems.	M2.A.SSE.B.3 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. b. Complete the square in a quadratic expression in the form Ax2 + Bx + C to reveal the maximum or minimum value of the function it defines.	remove
Integrated II	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Perform arithmetic operations on polynomials.	M2.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.	M2.A.APR.A.1 Add, subtract, and multiply polynomials. Use these operations to demonstrate that polynomials form a closed system that adhere to the same properties of operations as the integers.

Integrated II	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Understand the relationship between zeros and factors of polynomials.		M2.A.APR.A.1 Know and apply the Factor Theorem: For a polynomial p(x) and a number a, p(a) = 0 if and only if (x - a) is a factor of p(x). [S & C: Polynomials are limited to degree of two.]
Integrated II	Algebra (Creating Equations (A–CED))	A. Create equations that describe numbers or relationships.	M2.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	M2.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* [S & C: Tasks are limited to quadratic, square root, and exponential equations and inequalities.]
Integrated II	Algebra (Creating Equations (A–CED))	A. Create equations that describe numbers or relationships.	M2.A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.	M2.A.CED.A.2 Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions.* [S & C: Tasks are limited to quadratic, square root, and exponential.]
Integrated II	Algebra (Creating Equations (A–CED))	A. Create equations that describe numbers or relationships.	M2.A.CED.A.3 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	M2.A.CED.A.3 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.* [S & C: Tasks are limited to quadratic and square root functions. For example, rearrange the formula for the area of a circle to isolate the radius.]
Integrated II	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	M2.A.REI.A.1 Explain each step in solving an 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.	M2.A.REI.A.1 Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. [S & C: Tasks are limited to quadratic, square root, and exponential equations with integer exponents.]

Integrated II	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.	M2.A.REI.B.2 Solve quadratic equations and inequalities in one variable. a. Use the method of completing the square to rewrite 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. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, knowing and applying 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.	M2.A.REI.B.2 Solve quadratic equations and inequalities in one variable. a. Solve quadratic equations by inspection (e.g., for x^2 = 49), taking square roots, knowing and applying the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when a quadratic equation has non-real solutions. b. Solve quadratic inequalities using the graph of the related quadratic equation. [S & C: Tasks may or may not have a real-world context.]
	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.		M2.A.REI.B.3 Solve radical equations in one variable and identify extraneous solutions when they exist.
Integrated II	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	M2.A.REI.C.3 Write and solve a system of linear equations in context.	remove
Integrated II	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	M2.A.REI.C.4 Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	M2.A.REI.C.4 Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically, graphically, and using technology. [S & C: Tasks may or may not have a real-world context.]
	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.		M2.A.REI.D.5 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 approximate solutions by graphing the functions or making a table of values, using technology when appropriate. [S & C: When finding solutions approximately, students may be expected to produce graphs of functions that are linear, piecewise (including step and absolute value functions), quadratic, square root, and exponential, but may be given graphs of other function types.

Integrated II	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.		M2.F.IF.A.1 Use function notation.* a. Use function notation to evaluate functions for inputs in their domains, including functions of two variables. b. Interpret statements that use function notation in terms of a context. S&C: Limit to functions of one variable.
Integrated II	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.		M2.F.IF.A.2 Understand geometric formulas as functions. S&C: Limit to quadratic functions. For example, see geometric formulas such as area of a circle, area of a square, and surface area of a cube as quadratic functions.
Integrated II	Functions (Interpreting Functions (F.IF))	A. Interpret functions that arise in applications in terms of the context.	M2.F.IF.A.1 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.	M2.F.IF.B.3 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.* S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. Tasks are limited to piecewise (including step and absolute value functions), quadratic, square root, and exponential functions.
Integrated II	Functions (Interpreting Functions (F.IF))	A. Interpret functions that arise in applications in terms of the context.	M2.F.IF.A.2 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	M2.F.IF.B.4 Relate the domain of a function to its graph and, where applicable, to the context of the function it models.* S&C: For example, if the function h(t) gives the height of a ball thrown in the air in terms of time, the interval between 0 and the time it hits the ground would be an appropriate domain for the function. Tasks are limited to piecewise (including step and absolute value functions), quadratic, square root, and exponential functions.

Integrated II	Functions (Interpreting Functions (F.IF))	A. Interpret functions that arise in applications in terms of the context.	M2.F.IF.A.3 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.	M2.F.IF.B.5 Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph.* S&C: Tasks are limited to piecewise (including step and absolute value functions), quadratic, square root, and exponential functions.
Integrated II	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representation.	M2.F.IF.B.4 Graph functions expressed symbolically and show key features of the graph, by hand and using technology. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph exponential and logarithmic functions, showing intercepts and end behavior.	M2.F.IF.C.6 Graph functions expressed algebraically and show key features of the graph by hand and using technology. S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. Tasks are limited to piecewise (including step and absolute value functions), quadratic, square root, and exponential functions.
Integrated II	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representation.	M2.F.IF.B.5 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. b. Know and use the properties of exponents to interpret expressions for exponential functions.	M2.F.IF.C.7 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.* a. Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context. b. Know and use the properties of exponents to interpret expressions for exponential functions in terms of a real-world context. S&C: For example, the growth of bacteria can be modeled by either $f(t) = 3(t+2)$ or $g(t) = 9(3t)$ because the expression $3(t+2)$ can be rewritten as $(3t)(32) = 9(3t)$.

Integrated II	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representation.	M2.F.IF.B.6 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	M2.F.IF.C.8 Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions. a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways. b. Compare properties of the same function on two different intervals or represented in two different ways. S&C: Functions may or may not have a real-world context. Tasks are limited to piecewise (including step and absolute value functions), quadratic, square root, and exponential functions.
Integrated II	Functions (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	M2.F.BF.A.1 Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations.	M2.F.BF.A.1 Build a function that describes a relationship between two quantities.* b. Combine standard function types using arithmetic operations. S&C: Tasks are limited to linear, exponential, and quadratic relationships. For example, if 1000-70x represents the number of items sold in a month and 0.5 + 0.1x represents the cost of each item, multiply (1000 - 70x)(0.5 + 0.1x) to write the quadratic function representing the profit, where x is the number of 10-cent price increases.
Integrated II	Functions (Building Functions (F.BF))	B. Build new functions from existing functions.	M2.F.BF.B.2 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.	M2.F.BF.B.2 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 graphs. S&C: Experiment with cases and illustrate an explanation of the effects on the graph using technology. Tasks are limited to quadratic, square root, and exponential functions.

Integrated II	Functions (Linear and Exponential Models (F.LE))	A. Construct and compare linear and exponential models and solve problems.	M2.F.LE.A.1 Know that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or cubically. S&C: For example, illustrate using graphs and tables that g(x) = 2(1.6)^x eventually exceeds f(x) = x^2 + 10. Tasks are limited to quadratic and exponential functions.	Remove.
Integrated II	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.		M2.G.CO.A.1 Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not, by hand for basic transformations and using technology for more complex cases. [S & C: For example, a translation will preserve both distances and angle measures associated with a figure, a compression based around a point preserves angle measures but not distances, and a horizontal stretch does not preserve either except in the cases of a vertical line, ray, or line segment. Limit the comparison of transformations to figures drawn in a plane.]
Integrated II	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.		M2.G.CO.A.2 Given a rectangle, parallelogram, trapezoid, or regular polygon, determine the transformations that carry the shape onto itself and describe them in terms of the symmetry of the figure. [S & C: Limit transformations to figures drawn in a plane.]
Integrated II	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.		M2.G.CO.A.3 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
Integrated II	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.		M2.G.CO.A.4 Given a geometric figure, draw the image of the figure after a sequence of one or more rigid motions, by hand and using technology. Identify a sequence of rigid motions that will carry a given figure onto another.
Integrated II	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.		M2.G.CO.B.5 Given two figures, use the definition of congruence in terms of rigid motions to determine informally if they are congruent.

Integrated II	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.		M2.G.CO.B.6 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
Integrated II	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.		M2.G.CO.B.7 Explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.
Integrated II	Geometry (Congruence (G.CO))	C. Use geometric theorems to justify relationships.		M2.G.CO.B.8 Use definitions and theorems about triangles to solve problems and to justify relationships in geometric figures. [S & C: Justification may take a variety of forms. For example, tasks may include, but are not limited to: the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.]
Integrated II	Geometry (Congruence (G.CO))	C. Use geometric theorems to justify relationships.		M2.G.CO.B.9 Use definitions and theorems about parallelograms to solve problems and to justify relationships in geometric figures. [S & C: Justification may take a variety of forms. For example, tasks may include, but are not limited to: opposite sides of a parallelogram are congruent, opposite angles of a parallelogram are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.]
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	M2.G.SRT.A.1 Verify informally the properties of dilations given by a center and a scale factor.	M2.G.SRT.A.1 Use properties of dilations given by a center and a scale factor to solve problems and to justify relationships in geometric figures.
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	M2.G.SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	M2.G.SRT.A.2 Define similarity in terms of transformations. Use transformations to determine whether two figures are similar.

Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	M2.G.SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	remove
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	B. Prove theorems involving similarity.	M2.G.SRT.B.4 Prove theorems about similar triangles.	Remove.
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	B. Use similarity to solve problems and justify relationships.	M2.G.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.	M2.SRT.B.3 Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures. S&C: Justification may take a variety of forms. For example, tasks could include, but are not limited to: a line parallel to one side of a triangle divides the other two proportionally, and conversely; finding the area of a kite by partitioning it into two congruent triangles and finding the area of one triangle.
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	M2.G.SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	move to IM3
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	M2.G.SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.	move to IM3
Integrated II	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	M2.G.SRT.C.8 Solve triangles. a. Know and use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. b. Know and use the Law of Sines and the Law of Cosines to solve triangles in applied problems. Recognize when it is appropriate to use each.	revise and move to IM3

Integrated II	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	M2.G.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle and the volume and surface area of a cylinder, cone, prism, and pyramid.	revised and Moved to M3
Integrated II	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	M2.G.GMD.A.2 Know and use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems.	revised and Moved to M3
Integrated II	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable. *rename to B and revise: Summarize, represent, and interpret data on two categorical and quantitative variables.*	M2.S.ID.A.1 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.	M2.S.ID.A.1 Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.* S&C: Use given functions or choose a function suggested by the shape of the data. Emphasize linear, quadratic, and exponential functions.
Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	M2.S.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	revised and Moved to M3
Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	M2.S.CP.A.2 Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	revised and Moved to M3
Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	M2.S.CP.A.3 Know and understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	revised and Moved to M3

Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	M2.S.CP.A.4 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	revised and Moved to M3
Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	M2.S.CP.B.5 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the model.	revised and Moved to M3
Integrated II	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	M2.S.CP.B.6 Know and apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.	revised and Moved to M3

Grade/Course	Domain	Cluster	Standard	Suggested Change
Integrated III	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	M3.N.Q.A.1 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	M3.N.Q.A.1 Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays. b. Use appropriate quantities in formulas, converting units as necessary. c. Define and justify appropriate quantities within a context for the purpose of modeling. d. Choose an appropriate level of accuracy when reporting quantities. [S & C: Apply this standard to any real-world problems studied within the scope of this course.]
Integrated III	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.		M3.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [S & C: For example, view x(100 - 2x)(30 - 2x) as the product of the length, width, and height, which produces the volume of an open box made from a 100 by 30 rectangle with an x by x square cut out of each corner. Tasks are limited to exponential, quadratic, and cubic.]
Integrated III	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	M3.A.SSE.A.1 Use the structure of an expression to identify ways to rewrite it.	Remove
Integrated III	Algebra (Seeing Structure in Expressions (A.SSE))	B. Write expressions in equivalent forms to solve problems.	M3.A.SSE.B.2 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Use the properties of exponents to rewrite expressions for exponential functions.	remove
Integrated III	Algebra (Seeing Structure in Expressions (A.SSE))	B. Write expressions in equivalent forms to solve problems.	M3.A.SSE.B.3 Recognize a finite geometric series (when the common ratio is not 1), and use the sum formula to solve problems in context.	remove
Integrated III	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Perform arithmetic operations on polynomials.	M3.A.APR.A.1 Add, subtract, and multiply polynomials. Use these operations to demonstrate that polynomials form a closed system that adhere to the same properties of operations as the integers.	Remove. Put back in IM 2.

Integrated III	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	B. Understand the relationship between zeros and factors of polynomials.	M3.A.APR.A.1 Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x).	M3.A.APR.B.2 Know and apply the Factor Theorem: For a polynomial p(x) and a number a, p(a) = 0 if and only if (x - a) is a factor of p(x). [S & C: Polynomials are limited to degree of three.]
Integrated III	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	B. Understand the relationship between zeros and factors of polynomials.	M3.A.APR.A.2 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	M3.A.APR.B.3 Identify zeros of polynomials when suitable factorizations are available and use the zeros to construct a rough graph of the function defined by the polynomial. [S & C: Polynomials are limited to a degree of three.]
Integrated III	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	B. Use polynomial identities to solve problems.	M3.A.APR.B.3 Know and use polynomial identities to describe numerical relationships.	remove
Integrated III	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	C. Rewrite rational expressions.	M3.A.APR.C.4 Rewrite rational expressions in different forms.	remove
Integrated III	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	M3.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	M3.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems in a real-world context.* [S & C: Tasks are limited to cubic, cube root, or exponential equations and inequalities.]
Integrated III	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	M3.A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.	M3.A.CED.A.2 Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions.* [S & C: Tasks are limited to cubic, cube root, and exponential equations.]
Integrated III	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	M3.A.CED.A.3 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	M3.A.CED.A.3 Rearrange formulas to isolate a quantity of interest using algebraic reasoning.* [S & C: Tasks are limited to cubic, cube root, exponential, or logarithmic functions. For example, rearrange the formula for the volume of a cube to isolate the side length.]
Integrated III	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	M3.A.REI.A.1 Explain each step in solving an 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.	M3.A.REI.A.1 Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. [S & C: Tasks are limited to cubic, cube root, exponential equations.]

Integrated III	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	M3.A.REI.A.2 Solve rational and radical equations in one variable, and identify extraneous solutions when they exist.	M3.A.REI.A.2 Solve radical equations in one variable and identify extraneous solutions when they exist. [S & C: Limit radicand to a linear or quadratic expression. Limit the index to a value of 3. Tasks may or may not have a real-world context.}
Integrated III	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Represent and solve equations graphically.	M3.A.REI.B.3 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 approximate solutions using technology.	Remove from IM 3 - included in IM 1 and IM 2
Integrated III	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.		M3.F.IF.A.1 Use function notation.* a. Use function notation to evaluate functions for inputs in their domains, including functions of two variables. b. Interpret statements that use function notation in terms of a context. S&C: Use function notation with various functions of two variables. See functions as defined symbolically (e.g., f(a,b) = 3ab - a or a newly defined symbol like a$b = 3ab - a).
Integrated III	Funtions (Interpreting Functions (F.IF))	A. Understand the concept of a function and use function notation.	new standard	M3.F.IF.A.2 Understand geometric formulas as functions. S&C: Limit to cubic functions. For example, see geometric formulas such as the volume of a cube and volume of a sphere as cubic functions.
Integrated III	Functions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M3.F.IF.A.1 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.	M3.F.IF.B.3 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.* S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and/or asymptotes where appropriate. Tasks are limited to piecewise, cubic, cube root, exponential, and logarithmic functions.

Integrated III	Functions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M3.F.IF.B.4 Relate the domain of a function to its graph and, where applicable, to the context of the function it models.* S&C: For example, if the function V(r) gives the volume of a sphere in terms of its radius, r, then the positive real numbers would be an appropriate domain for the function. Tasks are limited to piecewise, cubic, cube root, exponential, and logarithmic functions.	Remove.
Integrated III	Functions (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	M3.F.IF.A.2 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.	M3.F.IF.B.5 Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph.*
Integrated III	Functions (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	M3.F.IF.B.3 Graph functions expressed symbolically and show key features of the graph, by hand and using technology. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available and showing end behavior. d. Graph exponential and logarithmic functions,	M3.F.IF.C.6 Graph functions expressed algebraically and show key features of the graph by hand and using technology. S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and/or asymptotes where appropriate. Tasks are limited to piecewise, cubic, cube root, exponential, and logarithmic functions.
Integrated III	Functions (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	M3.F.IF.B.4 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	M3.F.IF.C.7 Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions. a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways. b. Compare properties of the same function on two different intervals or represented in two different ways. S&C: Functions may or may not have a real-world context. Tasks are limited to piecewise, cubic, cube root, exponential, and logarithmic functions.

Integrated III	Functions (Building Functions (F.BF))	A. Build new functions from existing functions.		M3.F.BF.A.1 Build a function that describes a relationship between two quantities.* c. Combine standard function types using composition. S&C: For example, given a product originally priced at $x is $4 off, build a function using composition that would calculate the final price including 10% sales tax (i.e., f(g(x)) = 1.10(x-4)).
Integrated III	Functions (Building Functions (F.BF))	A. Build new functions from existing functions.	M3.F.BF.A.1 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.	M3.F.BF.A.2 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 graphs. S&C: Experiment with cases and illustrate an explanation of the effects on the graph using technology.
Integrated III	Functions (Building Functions (F.BF))	A. Build new functions from existing functions.	M3.F.BF.A.2 Find inverse functions. a. Find the inverse of a function when the given function is one-to-one.	M3.F.BF.A.3 Find the inverse of a function. a. Determine whether a function is one-to-one. b. Find the inverse of a function on an appropriate domain. c. Given an invertible function on an appropriate domain, identify the domain of the inverse function. Tasks are limited to linear, quadratic, square root, cubic, cube root, exponential, and logarithmic functions.
Integrated III	Functions (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	M3.F.LE.A.1 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	M3.F.LE.A.1 Know that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or cubically. S&C: For example, illustrate using graphs and tables that g(x) = 2^(1.6) x eventually exceeds f(x) = 4x^3 + 18. Tasks are limited to linear, quadratic, cubic and exponential functions.
Integrated III	Functions (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	M3.F.LE.A.2 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	M3.F.LE.A.2 Know the relationship between exponential functions and logarithmic functions. a. Solve exponential equations using a variety of strategies, including logarithms. b. Understand that a logarithm is the solution to abct=d, where a, b, c, and d are numbers. c. Evaluate logarithms using technology. S&C: Bases should include all numbers, including e.

Integrated III	Functions (Trigonometric Functions (F.TF))	A. Extend the domain of trigonometric functions using the unit circle.	M3.F.TF.A.1 Understand and use radian measure of an angle. a. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. b. Use the unit circle to find sin θ, cos θ, and tan θ when θ is a commonly recognized angle between 0 and 2π.	remove
Integrated III	Functions (Trigonometric Functions (F.TF))	A. Extend the domain of trigonometric functions using the unit circle.	M3.F.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	remove
Integrated III	Functions (Trigonometric Functions (F.TF))	B. Prove and apply trigonometric identities.	M3.F.TF.B.3 Know and use trigonometric identities to find values of trig functions. a. Given a point on a circle centered at the origin, recognize and use the right triangle ratio definitions of sin θ, cos θ, and tan θ to evaluate the trigonometric functions. b. Given the quadrant of the angle, use the identity $\sin^2 \theta + \cos^2 \theta = 1$ to find sin θ given cos θ, or vice versa.	remove
Integrated III	Geometry (Congruence (G.CO))	A. Make geometric constructions.	M3.G.CO.A.1 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).	Move to IM 1.
Integrated III	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	M3.G.C.A.1 Recognize that all circles are similar.	remove
Integrated III	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	M3.G.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords.	remove
Integrated III	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	M3.G.C.A.3 Construct the incenter and circumcenter of a triangle and use their properties to solve problems in context.	remove
Integrated III	Geometry (Circles (G.C))	A. Find areas of sectors of circles.	M3.G.C.B.4 Know the formula and find the area of a sector of a circle in a real-world context.	M3.G.C.A.1 Use proportional relationships between the area of a circle and the area of a sector within the circle to solve problems and represent solutions in a real-world context.* [S & C: Angles are measured in degrees.]

Integrated III	Geometry (Expressing Geometric Properties with Equations (G.GPE))	A. Translate between the geometric description and the equation for a circle.	M3.G.GPE.A.1 Know and write the equation of a circle of given center and radius using the Pythagorean Theorem.	remove
Integrated III	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to prove simple geometric theorems algebraically.	M3.G.GPE.B.2 Use coordinates to prove simple geometric theorems algebraically.	revise and move to IM1
Integrated III	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to prove simple geometric theorems algebraically.	M3.G.GPE.B.3 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	revise and move to IM1
Integrated III	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to prove simple geometric theorems algebraically.	M3.G.GPE.B.4 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	remove
Integrated III	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to prove simple geometric theorems algebraically.	M3.G.GPE.B.5 Know and use coordinates to compute perimeters of polygons and areas of triangles and rectangles.	revise and move to IM1
	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Define trigonometric ratios and solve problems involving triangles.	M2.G.SRT.A.1 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	M3.G.SRT.A.1 Use side ratios in right triangles to define trigonometric ratios. a. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. b. Explain and use the relationship between the sine and cosine of complementary angles.
	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Define trigonometric ratios and solve problems involving triangles.	M2.G.SRT.A.2 Explain and use the relationship between the sine and cosine of complementary angles.	

	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Define trigonometric ratios and solve problems involving triangles.		M2.G.SRT.A.3 Solve triangles.* a. Know and use the Pythagorean Theorem and trigonometric ratios (sine, cosine, tangent, and their inverses) to solve right triangles in a real-world context. b. Know and use relationships within special right triangles to solve problems in a real-world context. c. Use the Law of Sines and Law of Cosines to solve non-right triangles in a real-world context. S&C: For part C: exclude ambiguous cases.
Integrated III	Geometry (Modeling with Geometry (G.MG))	A. Apply geometric concepts in modeling situations.	M3.G.MG.A.1 Use geometric shapes, their measures, and their properties to describe objects.	M3.G.MG.A.1 Use geometric shapes, their measures, and their properties to model objects found in a real-world context for the purpose of approximating solutions to problems.* S&C: For example, determine which geometric shape best approximates a real-world object.
Integrated III	Geometry (Modeling with Geometry (G.MG))	A. Apply geometric concepts in modeling situations.	M3.G.MG.A.2 Apply geometric methods to solve real-world problems.	remove
Integrated III	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	M2.G.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle and the volume and surface area of a cylinder, cone, prism, and pyramid.	M3.G.GMD.A.1 Understand and explain the formulas for the volume and surface area of a cylinder, cone, prism, and pyramid. S&C: Informal arguments are limited to dissection.
Integrated III	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	M2.G.GMD.A.2 Know and use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems.	M3.G.GMD.A.2 Use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems in a real-world context.*
			new standard	M3.S.ID.A.1 Use measures of center to solve real-world and mathematical problems.* S&C: Measures of center should include mean (including weighted averages), median, and mode. For example, a course has 6 tests during the semester. If your average after the first 5 tests is 85, what must you score on the 6th test to have at least an 87 semester average?

Integrated III	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	M1.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.	M3.S.ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (mean, median, and/or mode) and spread (range, interquartile range, and standard deviation) of two or more different data sets.* S&C: Students may be given a numerical data set or a visual and/or verbal depiction of a data set. Students may instead be given a visual and/or verbal depiction of a density curve. Shapes of distribution are limited to: uniform, symmetric, right skewed, and left skewed. Students will not be expected to calculate the standard deviation.
Integrated III	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.		M3.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.*
Integrated III	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	M3.S.ID.A.1 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages using the Empirical Rule.	M3.S.ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages using the Empirical Rule.*
Integrated III	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	new standard	M3.S.ID.A.5 Compute, interpret, and compare z-scores for normally distributed data in a real-world context.*
Integrated III	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Summarize, represent, and interpret data on two categorical and quantitative variables.	M3.S.ID.B.2 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. 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. b. Fit a linear function for a scatter plot that suggests a linear association.	M3.S.ID.B.6 Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.* S&C: Use given functions or choose a function suggested by the shape of the data. Tasks are limited to linear, quadratic, cubic, logarithmic, and exponential functions.

Integrated III	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	M3.S.IC.A.1 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	M3.S.IC.A.1 Recognize the purposes of and differences among sample surveys, experiments, and observational studies.* S&C: For example, in a given situation, is it more appropriate to use a sample survey, an experiment, or an observational study?
Integrated III	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	new standard	M3.S.IC.A.2 Identify potential sources of bias in statistical studies.* S&C: Sources of bias include but are not limited to: leading questions, lack of randomization, sampling bias, undercoverage, nonresponse, and/or small sample size.
Integrated III	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	M3.S.IC.A.2 Use data from a sample survey to estimate a population mean or proportion; use a given margin of error to solve a problem in context.	Remove
Integrated III	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	new standard	M3.S.IC.A.3 Distinguish between a statistic and a parameter; Evaluate reports based on data and recognize when poor conclusions are drawn from well-collected data.

Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	A. Understand independence and conditional probability and use them to create visual representations of data.	new standard	M3.S.CP.A.1 Use set notation to represent contextual situations. a. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or", "and", "not"). b. Flexibly move between visual models (Venn diagrams, frequency tables, etc.) and set notation.
Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	A. Understand independence and conditional probability and use them to create visual representations of data.	new standard	M3.S.CP.A.2 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. Categorize events as independent or dependent.
Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	B. Understand and apply basic concepts of probability.	new standard	M3.S.CP.B.3 Apply statistical counting techniques. a. Use the Fundamental Counting Principle to compute probabilities of compound events and solve problems. b. Use permutations and combinations to compute probabilities of compound events and solve problems.
Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	B. Understand and apply basic concepts of probability.	new standard	M3.S.CP.B.4 Use the Law of Large Numbers to assess the validity of a statistical claim.
Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	C. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	new standard	M3.S.CP.C.5 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the given context. S&C: For example, a teacher gave two exams. 75 percent passed the first exam and 25 percent passed both. What percent who passed the first exam also passed the second exam? Calculating conditional probability may be performed via use of a visual model (Venn diagrams, frequency tables, etc.), calculation/formula, or by using counting techniques.

Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	C. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	new standard	M3.S.CP.C.6 Understand and apply the Addition Rule. a. Explain the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B) in terms of visual models (Venn diagrams, frequency tables, etc.). b. Apply the Addition Rule to solve problems and interpret the answer in terms of the given context. S&C: For example, in a math class of 32 students, 14 are boys and 18 are girls. On a unit test 6 boys and 5 girls made an A. If a student is chosen at random from a class, what is the probability of choosing a girl or an A student?
Integrated III	Statistics and Probability (Conditional Probability and the Rules of Probability (CP))	D. Apply geometric concepts to situations involving probability.	new standard	M3.S.CP.D.7 Calculate probabilities using geometric figures. S&C: Geometric figures include line segments, two-dimensional shapes, and three-dimensional solids.

Grade/Course	Domain	Cluster	Standard	Suggested Change
Algebra 1	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	A1.N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	CLUSTER HEADING: Change cluster heading to read: "Reason quantitatively and use units to understand problems." STANDARD: Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays. b. Use appropriate quantities in formulas, converting units as necessary. c. Define and justify appropriate quantities within a context for the purpose of modeling. d. Choose an appropriate level of accuracy when reporting quantities. [S&C: Apply this standard to any real-world problems studied within the scope of this course.]
Algebra 1	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to solve problems.	A1.N.Q.A.2 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	Remove, subsume by A.1
Algebra 1	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to solve problems.	A1.N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Remove, subsume by A.1
Algebra 1	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	A1.A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	No change. Add an example to S&C: For example: One train can transport A cubic feet, and a second train can transport B cubic feet. The first train makes x trips to a job site, while the second makes y trips. Interpret the expression Ax+By in terms of the context. For Integrated 2, make the example about profit and quantity, multiplied to create a quadratic.

Algebra 1	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	A1.A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.	Remove.
Algebra 1	Algebra (Seeing Structure in Expressions (A.SSE))	B. Write expressions in equivalent forms to reveal properties.	A1.A.SSE.B.3 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. b. Complete the square in a quadratic expression in the form Ax2 + Bx + C to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to rewrite exponential expressions.	Remove
Algebra 1	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Perform arithmetic operations on polynomials.	A1.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.	Add, subtract, and multiply polynomials. Use these operations to demonstrate that polynomials form a closed system that adhere to the same properties of operations as the integers.
Algebra 1	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	B. Understand the relationship between zeros and factors of polynomials.	A1.A.APR.B.2 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	Remove from this course - lives with the rest of polynomials in Algebra 2.
Algebra 1	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A1.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	Create equations and inequalities in one variable and use them to solve problems in a real-world context.* Added * for modeling standard. In S&C or in the intro, need to name that for the Algebra 1 course, equations are limited to linear, exponential, and absolute value.

Algebra 1	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A1.A.CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations with two variables on coordinate axes with labels and scales.	Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions.* In S&C: Tasks are limited to linear, quadratic, exponential, and absolute value functions
Algebra 1	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A1.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.	Create individual and systems of equations and/or inequalities to represent constraints in a contextual situation, and interpret solutions as viable or non-viable.* In S&C: For example, represent inequalities describing nutritional and cost constraints on combinations of different foods. The entire standard is assessed in this course.
Algebra 1	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A1.A.CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	Rearrange formulas to isolate a quantity of interest using algebraic reasoning. S&C: Tasks are limited to linear, quadratic, and absolute value equations. For example, rearrange the formula for the perimeter of a rectangle to isolate the length or width.
Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	A1.A.REI.A.1 Explain each step in solving an 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.	Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. S&C: Tasks are limited to linear, quadratic, and absolute value equations.

Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.	A1.A.REI.B.2 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	Solve linear and absolute value equations and inequalities in one variable. a. Solve linear equations and inequalities, including compound inequalities, in one variable. Represent solutions algebraically and graphically. b. Solve absolute value equations and inequalities in one variable. Represent solutions algebraically and graphically. In S&C: Equations and inequalities should include integer, rational, and/or irrational coefficients. If coefficients are irrationnal, rationalization of a denominator is not required. Tasks may or may not have a real-world context. **In IFDs, name that use of irrational coefficients is a higher-level understanding of the standard.
Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.	A1.A.REI.B.3 Solve quadratic equations and inequalities in one variable. a. Use the method of completing the square to rewrite 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. b. Solve quadratic equations by inspection (e.g., for x2 = 49), taking square roots, completing the square, knowing and applying the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions.	Solve quadratic equations and inequalities in one variable. a. Solve quadratic equations by inspection (e.g., for x^2 = 49), taking square roots, knowing and applying the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when a quadratic equation has nonreal solutions. b. Solve quadratic inequalities using the graph of the related quadratic equation. S&C: Tasks may or may not have a real-world context.
Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	A1.A.REI.C.4 Write and solve a system of linear equations in context.	Write and solve a system of linear equations in a real-world context.* In S&C: tasks are limited to systems of two equations and two unknowns.

Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	A1.A.REI.D.5 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).	No change to standard
Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	A1.A.REI.D.6 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 approximate solutions using technology.	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 approximate solutions by graphing the functions or making a table of values, using technology when appropriate. In S&C: When finding solutions approximately, students may be expected to produce graphs of functions that are linear, exponential, quadratic, and absolute value, but may be given graphs of other function types.
Algebra 1	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations and inequalities graphically.	A1.A.REI.D.7 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.	Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.
Algebra 1	Function (Interpreting Functions (F.IF))	A. Understand the concept of function and use function notation.	A1.F.IF.A.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).	No change to standard

Algebra 1	Function (Interpreting Functions (F.IF))	A. Understand the concept of function and use function notation.	A1.F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	Use function notation.* a. Use function notation to evaluate functions for inputs in their domains, including functions of two variables. b. Interpret statements that use function notation in terms of a context. In S&C: Use function notation with various functions of two variables. See functions as defined symbolically (e.g., f(a,b) = 3ab - a or a newly defined symbol like a%b=3ab-a).
Algebra 1	Function (Interpreting Functions (F.IF))	A. Understand the concept of function and use function notation.	New standard	Understand geometric formulas as functions. S&C: Limit to linear functions. For example, see geometric formulas such as interior angle sum, perimeter of a square, and circumference of a circle as linear functions. **All standards in F.IF after this need to be re-numbered.

Algebra 1	Function (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	A1.F.IF.B.3 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.	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.* In S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior. Tasks are limited to linear functions, absolute value functions, quadratic functions, and exponential functions with integer exponents.
Algebra 1	Function (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	A1.F.IF.B.4 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	Relate the domain of a function to its graph and, where applicable, to the context of the function it models.* S&C: 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. Tasks are limited to linear functions, piecewise functions (including step and absolute value functions), quadratic functions, and exponential functions integer exponents.

Algebra 1	Function (Interpreting Functions (F.IF))	B. Interpret functions that arise in applications in terms of the context.	A1.F.IF.B.5 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.	Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph.* In S&C: Tasks are limited to linear functions, piecewise functions (including step and absolute value functions), quadratic functions, and exponential functions with integer exponents.
		C. Analyze functions using different representations.	A1.F.IF.C.6 Graph functions expressed symbolically and show key features of the graph, by hand and using technology. a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	Graph functions expressed algebraically and show key features of the graph by hand and using technology. In S&C: Function types are limited to linear functions, quadratic functions, absolute value functions, and exponential functions with integer exponents.
Algebra 1	Function (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	A1.F.IF.C.7 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.	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.* a. Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context. **Note for traditional sequence - this standard is repeated in A2 with the addition of a second part on rewriting exponential functions.

Algebra 1	Function (Interpreting Functions (F.IF))	C. Analyze functions using different representations.	A1.F.IF.C.8 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions. a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways. b. Compare properties of the same function on two different intervals or represented in two different ways. In scope & clarification: Functions may or may not have a real-world context. Function types are limited to linear functions, quadratic functions, absolute value functions, and exponential functions with integer exponents.
Algebra 1	Function (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	A1.F.BF.A.1 Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	Build a function that describes a relationship between two quantities.* a. Determine steps for calculation, a recursive process, or an explicit expression from a context. [S&C: Tasks are limited to linear and exponential relationships. For example, create a function from a visual pattern and describe how each component of their function relates to characteristics of figures in the pattern.] **This standard is repeated in A2 with two additional parts about combining function types and composing functions

Algebra 1	Function (Building Functions (F.BF))	B. Build new functions from existing functions.	A1.F.BF.B.2 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.	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 graphs. In S&C: Experiment with cases and illustrate an explanation of the effects on the graph using technology. Tasks are limited to absolute value and quadratic functions.
Algebra 1	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A1.F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Recognize that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.	Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Know that linear functions grow by equal differences over equal intervals and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant factor per unit interval relative to another.
Algebra 1	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A1.F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input-output pairs.	No change
Algebra 1	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A1.F.LE.A.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.	

Algebra 1	Function (Linear, Quadratic, and Exponential Models (F.LE))	B. Interpret expressions for functions in terms of the situation they model.	A1.F.LE.B.4 Interpret the parameters in a linear or exponential function in terms of a context.	No change to standard. Mark with * to name as a modeling standard. Revise S&C to include an exponential example as well as a linear example. No need to state "tasks have a real-world context" in S&C, since the standard already says it's in terms of a context.
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	A1.S.ID.A.1 Represent single or multiple data sets with dot plots, histograms, stem plots (stem and leaf), and box plots.	Move to 7th grade. New standard to replace this one: Use measures of center to solve real-world and mathematical problems.* In S&C: Measures of center should include mean (including weighted averages), median, and mode. For example, a course has 6 tests during the semester. If your average after the first 5 tests is 85, what must you score on the 6th test to have at least an 87 semester average?
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	A1.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.	Use statistics appropriate to the shape of the data distribution to compare center (mean, median, and/or mode) and spread (range, interquartile range) of two or more different data sets.* Students may be given a numerical data set or a visual and/or verbal depiction of a data set. Shapes of distribution are limited to: uniform, symmetric, right skewed, and left skewed.

Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	A1.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).	Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points.*
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Summarize, represent, and interpret data on two categorical and quantitative variables.	A1.S.ID.B.4 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. 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. b. Fit a linear function for a scatter plot that suggests a linear association.	Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.* **In S&C: Fitted functions are limited to linear, exponential, and quadratic functions. **This standards repeats in A2 (as the exact same standard with different S&C, clarifying function types).
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	C. Interpret linear models.	A1.S.ID.C.5 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	Interpret the rate of change and the constant term of a linear model in the context of the data.*
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	C. Interpret linear models.	A1.S.ID.C.6 Use technology to compute and interpret the correlation coefficient of a linear fit.	Use technology to compute the correlation coefficent of a linear model; interpret the correlation coefficient in the context of the data.*
Algebra 1	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	C. Interpret linear models.	A1.S.ID.C.7 Distinguish between correlation and causation.	Explain the difference between correlation and causation. Recognize situations where an additional factor may be impacting correlated data.*

Grade/Course	Domain	Cluster	Standard	Suggested Change
Geometry	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to solve problems.	A2.N.Q.A.1 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	Use units as a way to understand real-world problems.* a. Use appropriate quantities in formulas, converting units as necessary. b. Define and justify appropriate quantities within a context for the purpose of modeling. c. Choose an appropriate level of accuracy when reporting quantities. [S & C: Apply this standard to any real-world problems studied within the scope of this course.]
Geometry	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	G.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, plane, distance along a line, and distance around a circular arc.	Remove from HS. Move each of these definitions to an earlier grade (wherever they are introduced). **Add notes to the IFD that teachers in 6-8 SHOULD NOT start with the definitions; these should be the end goal.

Geometry	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	G.CO.A.2 Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).	Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not, by hand for basic transformations and using technology for more complex cases. In Scope and Clarification: For example, a translation will preserve both distances and angle measures associated with a figure, a compression based around a point preserves angle measures but not distances, and a horizontal stretch does not preserve either except in the cases of a vertical line, ray, or line segment.
Geometry	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	G.CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry the shape onto itself.	Given a rectangle, parallelogram, trapezoid, or regular polygon, determine the transformations that carry the shape onto itself and describe them in terms of the symmetry of the figure.
Geometry	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	G.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	No change recommended

Geometry	Geometry (Congruence (G.CO))	A. Experiment with transformations in the plane.	G.CO.A.5 Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another.	Given a geometric figure, draw the image of the figure after a sequence of one or more rigid motions, by hand and using technology. Identify a sequence of rigid motions that will carry a given figure onto another.
Geometry	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	G.CO.B.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to determine informally if they are congruent.	Given two figures, use the definition of congruence in terms of rigid motions to determine informally if they are congruent.
Geometry	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	G.CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	No change recommended
Geometry	Geometry (Congruence (G.CO))	B. Understand congruence in terms of rigid motions.	G.CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, AAS, and SSS) follow from the definition of congruence in terms of rigid motions.	Explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.

Geometry	Geometry (Congruence (G.CO))	C. Use geometric theorems to justify relationships	G.CO.C.9 Prove theorems about lines and angles.	Use definitions and theorems about lines and angles to solve problems and to justify relationships in geometric figures. In S&C/IFD: "justification" may take a variety of forms. Theorems include but are not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints. **CLUSTER HEADING ALSO CHANGED TO REMOVE "PROVE": Use geometric theorems to justify relationships.

Geometry	Geometry (Congruence (G.CO))	C. Use geometric theorems to justify relationships	G.CO.C.10 Prove theorems about triangles.	Use definitions and theorems about triangles to solve problems and to justify relationships in geometric figures. In S&C: Theorems include but are not limited to: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. **CLUSTER HEADING ALSO CHANGED TO REMOVE "PROVE": Use geometric theorems to justify relationships.

Geometry	Geometry (Congruence (G.CO))	C. Use geometric theorems to justify relationships	G.CO.C.11 Prove theorems about parallelograms.	Use definitions and theorems about parallelograms to solve problems and to justify relationships in geometric figures. S & C: Justification may take a variety of forms. For example, tasks may include, but are not limited to: opposite sides of a parallelogram are congruent, opposite angles of a parallelogram are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals. **CLUSTER HEADING ALSO CHANGED TO REMOVE "PROVE": Use geometric theorems to justify relationships.
Geometry	Geometry (Congruence (G.CO))	D. Perform geometric constructions.	G.CO.D.12 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).	Change 1st word from "make" to "Perform". Add to S&C: Constructions are limited to: bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. **CLUSTER HEADING ALSO NEEDS TO CHANGE: Perform geometric constructions.

Geometry	Geometry (Congruence (G.CO))	D. Perform geometric constructions.	NEW STANDARD	G.CO.D.13 Use geometric constructions to solve geometric problems in context, by hand and using technology.* Add to scope and clarification: For example, find the point equidistant from three given points by constructing two perpendicular bisectors and locating their point of intersection. **CLUSTER HEADING ALSO NEEDS TO CHANGE: Perform geometric constructions.
	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	G.SRT.A.1 Verify informally the properties of dilations given by a center and a scale factor.	Use properties of dilations given by a center and a scale factor to solve problems and to justify relationships in geometric figures.
Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	G.SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	Define similarity in terms of transformations. Use transformations to determine whether two figures are similar.
Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	A. Understand similarity in terms of similarity transformations.	G.SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Remove.
Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	B. Use similarity theorems to justify relationships.	G.SRT.B.4 Prove theorems about similar triangles.	Remove.

Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	B. Use similarity to solve problems and justify relationships.	G.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.	No change recommended for standard. S&C: Justification may take a variety of forms. For example, tasks could include, but are not limited to: a line parallel to one side of a triangle divides the other two proportionally, and conversely; finding the area of a kite by partitioning it into two congruent triangles and finding the area of one triangle. **New cluster heading: Use similarity to solve problems and justify relationships.
Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	G.SRT.C.6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	G.SRT.C.6 Use side ratios in right triangles to define trigonometric ratios. a. Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. b. Explain and use the relationship between the sine and cosine of complementary angles.
Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	G.SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.	Move to G.SRT.C.6

Geometry	Geometry (Similarity, Right Triangles, and Trigonometry (G.SRT))	C. Define trigonometric ratios and solve problems involving triangles.	G.SRT.C.8 Solve triangles. a. Know and use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. b. Know and use the Law of Sines and Law of Cosines to solve problems in real life situations. Recognize when it is appropriate to use each.	Solve triangles.* a. Know and use the Pythagorean Theorem and trigonometric ratios (sine, cosine, tangent, and their inverses) to solve right triangles in a real-world context. b. Know and use relationships within special right triangles to solve problems in a real-world context. c. Use the Law of Sines and Law of Cosines to solve non-right triangles in a real-world context. S&C: For part C: exclude ambiguous cases. **In IFD, mention that this standard DOES NOT address secant, cosecant, and cotangent - inverse functions and not reciprocals :) **Also in IFD, address that "solve" means BOTH find side lengths and angle measures.
Geometry	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	G.C.A.1 Recognize that all circles are similar.	Remove
Geometry	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	G.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords.	Move to PC

Geometry	Geometry (Circles (G.C))	A. Understand and apply theorems about circles.	G.C.A.3 Construct the incenter and circumcenter of a triangle and use their properties to solve problems in context.	This is subsumed by our G.CO.D.13 standard.
Geometry	Geometry (Circles (G.C))	B. Find areas of sectors of circles.	G.C.B.4 Know the formula and find the area of a sector of a circle in a real-world context.	Use proportional relationships between the area of a circle and the area of a sector within the circle to solve problems in a real-world context.* Scope and Clarification: Angles are measured in degrees. **Will need to change introduction to name why there's only one circles standard.
Geometry	Geometry (Expressing Geometric Properties with Equations (G.GPE))	A. Translate between the geometric description and the equation for a circle.	G.GPE.A.1 Know and write the equation of a circle of given center and radius using the Pythagorean Theorem.	Move to PC.

Geometry	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to solve problems and justify simple geometric theorems algebraically.	G.GPE.B.2 Use coordinates to prove simple geometric theorems algebraically.	Use coordinates to justify geometric relationships algebraically and to solve problems. For Scope and Clarification: Examples include but are not limited to: determine whether four points in the coordinate plane are the vertices of a rectangle, trapezoid, rhombus, square, or parallelogram; determine whether three points in the coordinate plane are the vertices of a scalene, isosceles, equilateral, or right triangle; determine the median of a triangle using the midpoint formula; given the coordinates of the center of a circle and a point on the circle, find the area and/or circumference of the circle. **New cluster heading: Use coordinates to solve problems and justify simple geometric

Geometry	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to solve problems and justify simple geometric theorems algebraically.	G.GPE.B.3 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	Use the slope criteria for parallel and perpendicular lines to solve problems and to justify relationships in geometric figures. For Scope and Clarification: For example, justify why two lines are parallel, perpendicular, or neither. Create parallel and perpendicular lines to solve problems in context (e.g., given three noncollinear points in the plane, find the coordinates of a fourth point so that the four points are the vertices of a rectangle). **New cluster heading: Use coordinates to solve problems and justify simple geometric theorems algebraically.
Geometry	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to prove simple geometric theorems algebraically.	G.GPE.B.4 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	Remove

Geometry	Geometry (Expressing Geometric Properties with Equations (G.GPE))	B. Use coordinates to solve problems and justify simple geometric theorems algebraically.	G.GPE.B.5 Know and use coordinates to compute perimeters of polygons and areas of triangles and rectangles.	Understand the relationship between the Pythagorean Theorem and the distance formula and use an efficient method to solve problems on the coordinate plane. For example, compute the radius of a circle given a center and a point on the circle, perimeters of polygons, and areas of triangles and quadrilaterals. Scope and clarification: Finding the area of a triangle is limited to cases when the triangle is either right or contains a side that is horizontal or vertical. **New cluster heading: Use coordinates to solve problems and justify simple geometric theorems algebraically.
Geometry	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	G.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle and the volume and surface area of a cylinder, cone, prism, and pyramid.	Understand and explain the formulas for the volume and surface area of a cylinder, cone, prism, and pyramid. S&C: Informal arguments are limited to dissection.

Geometry	Geometry (Geometric Measurement and Dimension (G.GMD))	A. Explain volume and surface area formulas and use them to solve problems.	G.GMD.A.2 Know and use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems.	Use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems in a real-world context.*
Geometry	Geometry (Modeling with Geometry (G.MG))	A. Apply geometric concepts in modeling situations.	G.MG.A.1 Use geometric shapes, their measures, and their properties to describe objects.	Use geometric shapes, their measures, and their properties to model objects found in a real-world context for the purpose of appoximating solutions to problems.* S&C: For example, determine which geometric shape best approximates a real-world object.
Geometry	Geometry (Modeling with Geometry (G.MG))	A. Apply geometric concepts in modeling situations.	G.MG.A.2 Apply geometric methods to solve real-world problems.	Remove.

Geometry	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to create visual representations of data.	A2.S.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	G.S.CP.A.1 Use set notation to represent contextual situations.* a. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or", "and", "not"). b. Flexibly move between visual models (Venn diagrams, frequency tables, etc.) and set notation. **New cluster heading: Understand independence and conditional probability and use them to create visual representations of data.
Geometry	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	A2.S.CP.B.5 Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A and interpret the answer in terms of the model.	G.S.CP.B.2 Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A and interpret the answer in terms of the given context.* Calculating conditional probability may be performed via use of a visual model (Venn diagrams, frequency tables, etc.).

Geometry	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	A2.S.CP.B.6 Know and apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.	G.S.CP.B.3 Understand and apply the Addition Rule.* a. Explain the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B) in terms of visual models (Venn diagrams, frequency tables, etc.). b. Apply the Addition Rule to solve problems and interpret the answer in terms of the given context.	
Geometry	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	C. Apply geometric concepts to situations involving probability.	G.S.CP.A.1 Calculate the probability of randomly selecting a point in a specified region of a two-dimensional figure.	G.S.CP.C.4 Calculate probabilities using geometric figures.* In S&C: Geometric figures include line segments, two-dimensional shapes, and three-dimensional solids. **Standard needs a new code. It is new - now cluster "C".	SD

Grade/Course	Domain	Cluster	Standard	Suggested Change
Algebra 2	Number and Quantity (The Real Number System (N.RN))	A. Extend the properties of exponents to rational exponents.	A2.N.RN.A.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.	Extend the properties of integer exponents to rational exponents. a. Develop the meaning of rational exponents by applying the properties of integer exponents. b. Explain why x^(1/n) can be written as the nth root of x. c. Rewrite expressions involving radicals and rational exponents using the properties of exponents. S&C Part B: for example, we define 5^1/3 to be the cube root of 5 because we want (5^1/3)3 = 5^(1/3)3 to hold, so (5^1/3)3 must equal 5.
Algebra 2	Number and Quantity (The Real Number System (N.RN))	A. Extend the properties of exponents to rational exponents.	A2.N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Move. It is now combined with A2.N.RN.A.1, part c.
Algebra 2	Number and Quantity (Quantities (N.Q))	A. Reason quantitatively and use units to understand problems.	A2.N.Q.A.1 Identify, interpret, and justify appropriate quantities for the purpose of descriptive modeling.	CLUSTER HEADING: Change cluster heading to read: "Reason quantitatively and use units to understand problems." STANDARD: Use units as a way to understand real-world problems.* a. Choose and interpret the scale and the origin in graphs and data displays. b. Use appropriate quantities in formulas, converting units as necessary. c. Define and justify appropriate quantities within a context for the purpose of modeling. d. Choose an appropriate level of accuracy when reporting quantities. [S & C: Apply this standard to any real-world problems studied within the scope of this course.]

Algebra 2	Number and Quantity (Matrices (N.M))	A. Perform operations on matrices and use matrices in applications.	New standard	A2.N.M.A.1 Use matrices to represent data in a real-world context. Interpret rows, columns, and dimensions of matrices in terms of the context.*
Algebra 2	Number and Quantity (Matrices (N.M))	A. Perform operations on matrices and use matrices in applications.		A2.N.M.A.2 Perform operations on matrices in a real-world context.* a. Multiply a matrix by a scalar to produce a new matrix. b. Add and/or subtract matrices by hand and using technology. c. Multiply matrices of appropriate dimensions, by hand in simple cases and using technology for more complicated cases. d. Describe the roles that zero matrices and identity matrices play in matrix addition and multiplication, recognizing that they are similar to the roles of 0 and 1 in the real number system. In S&C: Part c: each matrix used as a factor is limited to no more than six elements when multiplying by hand.
Algebra 2	Number and Quantity (Matrices (N.M))	A. Perform operations on matrices and use matrices in applications.		
Algebra 2	Number and Quantity (Matrices (N.M))	A. Perform operations on matrices and use matrices in applications		A2.N.M.A.4 Create and use augmented matrices to solve systems of linear equations in real-world contexts, by hand and using technology.* In S&C: When solving by hand, limit system size to at most two unknowns, and when solving by technology, limit system size to at most three unknowns.

Algebra 2	Number and Quantity (The Complex Number System (N.CN))	A. Perform arithmetic operations with complex numbers.	A2.N.CN.A.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form a + bi with a and b real.	Move to Pre-Calc
Algebra 2	Number and Quantity (The Complex Number System (N.CN))	A. Perform arithmetic operations with complex numbers.	A2.N.CN.A.2 Know and use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	Move to Pre-Calc
Algebra 2	Number and Quantity (The Complex Number System (N.CN))	B. Use complex numbers in quadratic equations.	A2.N.CN.B.3 Solve quadratic equations with real coefficients that have complex solutions.	Move to Pre-Calc (though students will "solve" these types of quadratics in REI.B.whatever, just not FULLY solve)
Algebra 2	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	A2.A.SSE.A.1	Interpret expressions that represent a quantity in terms of its context.* a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [S & C: For example, Interpret P(1 + r)^n as the product of the initial value P and the growth rate after the first n years. View (1000 - 70x)(0.5 + 0.1x) as the product of the number of items sold and the cost of each item, which produces the profit, where x is the number of 10-cent price increases. View x(100 - 2x)(30 - 2x) as the product of the length, width, and height, which produces the volume of an open box made from a 100 by 30 rectangle with an x by x square cut out of each corner. Tasks are limited to exponential, quadratic and cubic.]
Algebra 2	Algebra (Seeing Structure in Expressions (A.SSE))	A. Interpret the structure of expressions.	A2.A.SSE.A.1 Use the structure of an expression to identify ways to rewrite it.	Remove.

Algebra 2	Algebra (Seeing Structure in Expressions (A.SSE))	B. Use expressions in equivalent forms to solve problems.	A2.A.SSE.B.2 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Use the properties of exponents to rewrite expressions for exponential functions.	Remove.
Algebra 2	Algebra (Seeing Structure in Expressions (A.SSE))	B. Use expressions in equivalent forms to solve problems.	A2.A.SSE.B.3 Recognize a finite geometric series (when the common ratio is not 1), and use the sum formula to solve problems in context.	Remove.
Algebra 2	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Understand the relationship between zeros and factors of polynomials.	A2.A.APR.A.1 Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x).	Know and apply the Factor Theorem: For a polynomial p(x) and a number a, p(a) = 0 if and only if (x - a) is a factor of p(x). In scope and clarification: Polynomials are limited to degree 3 or less.
Algebra 2	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	A. Understand the relationship between zeros and factors of polynomials.	A2.A.APR.A.2 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	No change. Add to S&C: Polynomials are limited to degree 3 or less.
Algebra 2	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	B. Use polynomial identities to solve problems.	A2.A.APR.B.3 Know and use polynomial identities to describe numerical relationships.	Remove
Algebra 2	Algebra (Arithmetic with Polynomials and Rational Expressions (A.APR))	C. Rewrite rational expressions.	A2.A.APR.C.4 Rewrite rational expressions in different forms.	Move to PC with the rest of rational functions
Algebra 2	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A2.A.CED.A.1 Create equations and inequalities in one variable and use them to solve problems.	Create equations and inequalities in one variable and use them to solve problems in a real-world context.* Added * for modeling standard. S&C: Tasks are limited to quadratic, cubic, square root, cube root, and exponential equations and inequalities.

Algebra 2	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	New standard (repeated from A1)	Create equations in two variables to represent relationships between quantities and use them to solve problems in a real-world context. Graph equations with two variables on coordinate axes with labels and scales, and use the graphs to make predictions.* S&C: Tasks are limited to linear, quadratic, cubic, square root, cube root, exponential, and absolute value functions. **This would be CED.A.2; need to renumber next standard as CED.A.3
Algebra 2	Algebra (Creating Equations (A.CED))	A. Create equations that describe numbers or relationships.	A2.A.CED.A.2 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	Rearrange formulas to isolate a quantity of interest using algebraic reasoning. Tasks are limited to quadratic, square root, cubic, cube root, exponential, or logarithmic functions. For example, rearrange the formula for the area of a circle to isolate the radius. Rearrange the formula for the volume of a cube to isolate the side length.
Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	A2.A.REI.A.1 Explain each step in solving an 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.	Understand solving equations as a process of reasoning and explain the reasoning. Construct a viable argument to justify a solution method. S&C: Tasks are limited to quadratic, radical, exponential, and logarithmic functions.
Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	A. Understand solving equations as a process of reasoning and explain the reasoning.	A2.A.REI.A.2 Solve rational and radical equations in one variable, and identify extraneous solutions when they exist.	Solve radical equations in one variable, and identify extraneous solutions when they exist. S&C: Limit radicand to a linear or quadratic expression. Limit the index to a value of 2 or 3. Tasks may or may not have a real-world context.

Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	B. Solve equations and inequalities in one variable.	A2.A.REI.B.3 Solve quadratic equations and inequalities in one variable. a. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, knowing and applying 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.	Moved entirely to Algebra I; complex numbers removed
Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	A2.A.REI.C.4 Write and solve a system of linear equations in context.	Write and solve a system of linear equations in a real-world context.* S&C: When solving algebraically and graphically, tasks are limited to systems of at most two equations and two variables. When solving using technology, tasks are limited to systems of at most three equations and three variables. For example, use a system of equations to find the vertices of a triangle defined by three lines.
Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	C. Solve systems of equations.	A2.A.REI.C.5 Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically, graphically, and using technology. S&C: Tasks may or may not have a real-world context.
Algebra 2	Algebra (Reasoning with Equations and Inequalities (A.REI))	D. Represent and solve equations graphically.	A2.A.REI.D.6 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 approximate solutions using technology.	Remove.

Algebra 2	Functions (Interpreting Functions (F.IF))	A. Interpret functions that arise in applications in terms of the context.	A2.F.IF.A.1 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.	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.* S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and/or asymptotes where appropriate. Tasks are limited to linear, quadratic, cubic, square root, cube root, exponential, logarithmic, and piecewise (including absolute value functions).
Algebra 2	Functions (Interpreting Functions (F.IF))	A. Interpret functions that arise in applications in terms of the context.	A2.F.IF.A.2 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.	Calculate and interpret the average rate of change of a function (presented algebraically or as a table) over a specified interval. Estimate and interpret the rate of change from a graph.*
Algebra 1	Function (Interpreting Functions (F.IF))	A. Understand the concept of function and use function notation.	New standard	Understand geometric formulas as functions. S&C: Limit to quadratic and cubic functions. For example, see geometric formulas such as area of a circle, area of a square, and surface area of a cube as quadratic functions. See the volume of a cube and volume of a sphere as cubic functions. **All standards in F.IF after this need to be re-numbered.

Algebra 2	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representations.	A2.F.IF.B.3 Graph functions expressed symbolically and show key features of the graph, by hand and using technology. a. Graph square root, cube root, and piecewise defined functions, including step functions and absolute value functions. b. Graph polynomial functions, identifying zeros when suitable factorizations are available and showing end behavior. c. Graph exponential and logarithmic functions, showing intercepts and end behavior.	Graph functions expressed algebraically and show key features of the graph by hand and using technology. S&C: Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and/or asymptotes where appropriate. Tasks are limited to linear, quadratic, cubic, square root, cube root, exponential, logarithmic, and piecewise functions (including absolute value functions).
Algebra 2	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representations.	A2.F.IF.B.4 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Know and use the properties of exponents to interpret expressions for exponential functions.	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.* a. Rewrite quadratic functions to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a real-world context. b. Know and use the properties of exponents to interpret expressions for exponential functions in terms of a real-world context. S&C: For example, the growth of bacteria can be modeled by either $f(t) = 3(t+2)$ or $g(t) = 9(3t)$ because the expression $3(t+2)$ can be rewritten as $(3t)(32) = 9(3t)$.

Algebra 2	Functions (Interpreting Functions (F.IF))	B. Analyze functions using different representations.	A2.F.IF.B.5 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Compare properties of functions represented algebraically, graphically, numerically in tables, or by verbal descriptions. a. Compare properties of two different functions. Functions may be of different types and/or represented in different ways. b. Compare properties of the same function on two different intervals or represented in two different ways. In scope & clarification: Functions may or may not have a real-world context. Tasks are limited to linear, quadratic, cubic, square root, cube root, exponential, logarithmic, and piecewise functions (including absolute value functions).
Algebra 2	Functions (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	A2.F.BF.A.1 Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations.	Build a function that describes a relationship between two quantities.* a. Combine standard function types using arithmetic operations. b. Combine standard function types using composition. S&C: Tasks are limited to linear, quadratic, square root, cubic, cube root, exponential, and logarithmic functions. Part a: Tasks are limited to linear, exponential, and quadratic relationships. Part b: for example, if 1000-70x represents the number of items sold in a month and 0.5 + 0.1x represents the cost of each item, multiply (1000 - 70x)(0.5 + 0.1x) to write the quadratic function representing the profit, where x is the number of 10-cent price increases. Part b: For example, given a product originally priced at $x is $4 off, build a function using composition that would calculate the final price including 10% sales tax (i.e., f(g(x)) = 1.10(x-4)).

Algebra 2	Functions (Building Functions (F.BF))	A. Build a function that models a relationship between two quantities.	A2.F.BF.A.2 Write arithmetic and geometric sequences with an explicit formula and use them to model situations.	Define sequences as functions, including recursive definitions, whose domain is a subset of the integers. Write explicit and recursive formulas for arithmetic and geometric sequences in context and connect them to linear and exponential functions.*
Algebra 2	Functions (Building Functions (F.BF))	B. Build new functions from existing functions.	A2.F.BF.B.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.	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 graphs. In S&C: Experiment with cases and illustrate an explanation of the effects on the graph using technology.
Algebra 2	Functions (Building Functions (F.BF))	B. Build new functions from existing functions.	A2.F.BF.B.4 Find inverse functions. a. Find the inverse of a function when the given function is one-to-one.	Find the inverse of a function. a. Determine whether a function is one-to-one. b. Find the inverse of a function on an appropriate domain. c. Given an invertible function on an appropriate domain, identify the domain of the inverse function. Tasks are limited to linear, quadratic, square root, cubic, cube root, exponential, and logarithmic functions.
Algebra 2	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A2.F.LE.A.1 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a table, a description of a relationship, or input-output pairs.	Remove

Algebra 2	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A2.F.LE.A.2 For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	Know the relationship between exponential functions and logarithmic functions. a. Solve exponential equations using a variety of strategies, including logarithms. b. Understand that a logarithm is the solution to ab^(ct)=d, where a, b, c, and d are numbers. c. Evaluate logarithms using technology. In S&C, note that bases should include ALL numbers, including "e".
Algebra 1	Function (Linear, Quadratic, and Exponential Models (F.LE))	A. Construct and compare linear, quadratic, and exponential models and solve problems.	A1.F.LE.A.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.	Know that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or cubically. S&C: For example, illustrate using graphs and tables that g(x) = 2^(1.6) x eventually exceeds f(x) = 4x^3 + 18. Tasks are limited to linear, quadratic, cubic and exponential functions.
Algebra 2	Function (Linear, Quadratic, and Exponential Models (F.LE))	B. Interpret expressions for functions in terms of the situation they model.	A2.F.LE.B.3 Interpret the parameters in a linear or exponential function in terms of a context.	Remove. Already addressed in Algebra 1.
Algebra 2	Function (Trigonometric Functions (F.TF))	A. Extend the domain of trigonometric functions using the unit circle.	A2.F.TF.A.1 Understand and use radian measure of an angle. a. Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. b. Use the unit circle to find sin θ, cos θ, and tan θ when θ is a commonly recognized angle between 0 and 2π.	Remove from A2; move to PC. PC team; consider changing verb from "use" - students should be deriving.
Algebra 2	Function (Trigonometric Functions (F.TF))	A. Extend the domain of trigonometric functions using the unit circle.	A2.F.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	Remove from A2; move to PC.

Algebra 2	Function (Trigonometric Functions (F.TF))	B. Prove and apply trigonometric identities.	A2.F.TF.B.3 Know and use trigonometric identities to find values of trig functions. a. Given a point on a circle centered at the origin, recognize and use the right triangle ratio definitions of sin θ, cos θ, and tan θ to evaluate the trigonometric functions. b. Given the quadrant of the angle, use the identity $\sin^2 \theta + \cos^2 \theta = 1$ to find sin θ given cos θ, or vice versa.	Remove from A2; move to PC.
Algebra 2	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	New standard	Use statistics appropriate to the shape of the data distribution to compare center (mean, median, and/or mode) and spread (range, standard deviation) of two or more different data sets.* Students will be given a visual and/or verbal description of a density curve. Shapes of distribution are limited to: uniform, symmetric, right skewed, and left skewed. Student will not have to calculate standard deviation. In IFD, call out that the difference between A1 and A2 is the addition of standard deviation and use of a density curve instead of individual points. ***NOTE: all statistics standards will need to be re-numbered.
Algebra 2	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	A2.S.ID.A.1 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages using the Empirical Rule.	No change. **Mark as "modeling" standard with *
Algebra 2	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	A. Summarize, represent, and interpret data on a single count or measurement variable.	New standard	Compute, interpret, and compare z-scores for normally distributed data in a real-world context.*

Algebra 2	Statistics and Probability (Interpreting Categorical and Quantitative Data (S.ID))	B. Summarize, represent, and interpret data on two categorical and quantitative variables.	A2.S.ID.B.2 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data.	Represent data from two quantitative variables on a scatter plot, and describe how the variables are related. 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 shape of the data. Tasks are limited to linear, quadratic, cubic, logarithmic, and exponential functions.
Algebra 2	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	A2.S.IC.A.1 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	Split into two standards: Standard #1: Recognize the purposes of and differences among sample surveys, experiments, and observational studies.* S&C: For example, in a given situation, is it more appropriate to use a sample survey, an experiment, or an observational study? Standard #2: Identify potential sources of bias in statistical studies.* S&C: Sources of bias include but are not limited to: leading questions, lack of randomization, sampling bias, undercoverage, nonresponse, and/or small sample size.

Algebra 2	Statistics and Probability (Making Inferences and Justifying Conclusions (S.IC))	A. Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	A2.S.IC.A.2 Use data from a sample survey to estimate a population mean or proportion; use a given margin of error to solve a problem in context.	Move current standard to statistics. Replace with: Distinguish between a statistic and a parameter; Evaluate reports based on data and recognize when poor conclusions are drawn from well-collected data.
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to create visual representations of data.	A2.S.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).	Use set notation to represent contextual situations.* a. Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or", "and", "not"). b. Flexibly move between visual models (Venn diagrams, frequency tables, etc.) and set notation. **New cluster heading: Understand independence and conditional probability and use them to create visual representations of data.
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	A2.S.CP.A.2 Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	Move to statistics
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to interpret data.	A2.S.CP.A.3 Know and understand the conditional probability of A given B as P(A and B)/P(B), and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.	Move to statistics

Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	A. Understand independence and conditional probability and use them to create visual representations of data.	A2.S.CP.A.4 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. Categorize events as independent or dependent.* **New cluster heading (same as previous standard): Understand independence and conditional probability and use them to create visual representations of data.
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Understand and apply basic concepts of probability.	New standard	New cluster heading: Understand and apply basic concepts of probability. Apply statistical counting techniques.* a. Use the Fundamental Counting Principle to compute probabilities of compound events and solve problems. b. Use permutations and combinations to compute probabilities of compound events and solve problems.
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Understand and apply basic concepts of probability.	New standard	New cluster heading: Understand and apply basic concepts of probability. Use the Law of Large Numbers to assess the validity of a statistical claim.*

Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	A2.S.CP.B.5 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the model.	Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A and interpret the answer in terms of the given context.* Calculating conditional probability may be performed via use of a visual model (Venn diagrams, frequency tables, etc.), calculation/formula, or by using counting techniques. For example, a teacher gave two exams. 75 percent passed the first exam and 25 percent passed both. What percent who passed the first exam also passed the second exam? **Standards need to be renumbered here - this is cluster C (same language; "use the rules of probability....")
Algebra 2	Statistics and Probability (Conditional Probability and the Rules of Probability (S.CP))	B. Use the rules of probability to compute probabilities of compound events in a uniform probability model.	A2.S.CP.B.6 Know and apply the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B), and interpret the answer in terms of the model.	Understand and apply the Addition Rule.* a. Explain the Addition Rule, P(A or B) = P(A) + P(B) – P(A and B) in terms of visual models (Venn diagrams, frequency tables, etc.). b. Apply the Addition Rule to solve problems and interpret the answer in terms of the given context. S&C: For example, in a math class of 32 students, 14 are boys and 18 are girls. On a unit test 6 boys and 5 girls made an A. If a student is chosen at random from a class, what is the probability of choosing a girl or an A student? **Standards need to be renumbered here - this is cluster C (same language; "use the rules of probability...")