PSAT/NMSQT Skill Category and Description of Skills	West Virginia Math: Standards and Objectives 2006		
	Course/ Level	Standard	Standard ID
Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra I	M.O.A1.2.1 formulate algebraic expressions for use in equations and inequalities that require planning to accurately model real-world problems.	M.O.A1.2.1
	Algebra I	M.O.A1.2.10 simplify and evaluate algebraic expressions add and subtract polynomials	M.O.A1.2.10.a
	Algebra I	M.O.A1.2.10 simplify and evaluate algebraic expressions multiply and divide binomials by binomials or monomials	M.O.A1.2.10.b
	Algebra I	M.O.A1.2.11 create polynomials to represent and solve problems from real-world situations while focusing on symbolic and graphical patterns.	M.O.A1.2.11
	Algebra I	M.O.A1.2.12 use area models and graphical representations to develop and explain appropriate methods of factoring.	M.O.A1.2.12
	Algebra I	M.O.A1.2.13 simplify radical expressions through adding, subtracting, multiplying and dividing	M.O.A1.2.13.a
	Algebra I	M.O.A1.2.13 simplify radical expressions exact and approximate forms	M.O.A1.2.13.b
	Algebra I	M.O.A1.2.14 choose the most efficient method to solve quadratic equations by graphing (with and without technology), factoring, and quadratic formula and draw reasonable conclusions about a situation being modeled.	M.O.A1.2.14
	Algebra I	M.O.A1.2.15 describe real life situations involving exponential growth and decay equations including y=2 to the x power and y=(S) to the x power; compare the equation with attributes of an associated table and graph to demonstrate an understanding of their interrelationship.	M.O.A1.2.15
	Algebra I	M.O.A1.2.16 simplify and evaluate rational expressions add, subtract, multiply and divide	M.O.A1.2.16.a

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra I	M.O.A1.2.16 simplify and evaluate rational expressions determine when an expression is undefined.	M.O.A1.2.16.b
	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), compare and evaluate methods of fitting lines to data.	M.O.A1.2.17.a
	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), identify the equation for the line of regression,	M.O.A1.2.17.b
	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), use the equation to predict specific values of a variable.	M.O.A1.2.17.d
	Algebra I	M.O.A1.2.18 compute and interpret the expected value of random variables in simple cases using simulations and rules of probability (with and without technology).	M.O.A1.2.18
	Algebra I	M.O.A1.2.2 create and solve multi-step linear equations, absolute value equations, and linear inequalities in one variable, (with and without technology); apply skills toward solving practical problems such as distance, mixtures or motion and judge the reasonableness of solutions.	M.O.A1.2.2
	Algebra I	M.O.A1.2.21 use multiple representations, such as words, graphs, tables of values and equations, to solve practical problems; describe advantages and disadvantages of the use of each representation.	M.O.A1.2.21
	Algebra I	M.O.A1.2.3 evaluate data provided, given a real-world situation, select an appropriate literal equation and solve for a needed variable.	M.O.A1.2.3
	Algebra I	M.O.A1.2.4 develop and test hypotheses to derive the laws of exponents and use them to perform operations on expressions with integral exponents.	M.O.A1.2.4
	Algebra I	M.O.A1.2.5 analyze a given set of data and prove the existence of a pattern numerically, algebraically and graphically, write equations from the patterns and make inferences and predictions based on observing the pattern.	M.O.A1.2.5

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra I	M.O.A1.2.6 determine the slope of a line through a variety of strategies (e.g. given an equation or graph).	M.O.A1.2.6
	Algebra I	M.O.A1.2.7 analyze situations and solve problems by determining the equation of a line given a graph of a line, two points on the line, the slope and a point, or the slope and y intercept.	M.O.A1.2.7
	Algebra I	M.O.A1.2.8 identify a real life situation that involves a constant rate of change; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; extend the nature of collected, discrete data to that of a continuous linear function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	M.O.A1.2.8
	Algebra I	M.O.A1.2.9 create and solve systems of linear equations graphically and numerically using the elimination method and the substitution method, given a real-world situation.	M.O.A1.2.9
	Algebra II	M.O.A2.2. 4 simplify expressions involving radicals and fractional exponents, convert between the two forms, and solve equations containing radicals and exponents.	M.O.A2.2. 4
	Algebra II	M.O.A2.2. 5 solve quadratic equations over the set of complex numbers: apply the techniques of factoring, completing the square, and the quadratic formula; use the discriminate to determine the number and nature of the roots; identify the maxima and minima; use words, graphs, tables, and equations to generate and analyze solutions to practical problems..	M.O.A2.2. 5
	Algebra II	M.O.A2.2.1 determine equations of lines including parallel, perpendicular, vertical and horizontal lines, and compare and contrast the properties of these equations.	M.O.A2.2.1
	Algebra II	M.O.A2.2.10 solve and graph the solution set of systems of linear inequalities in two variables by finding the maximum or minimum values of a function over the feasible region using linear programming techniques.	M.O.A2.2.10
	Algebra II	M.O.A2.2.11 solve practical problems involving direct, inverse and joint variation.	M.O.A2.2.11
	Algebra II	M.O.A2.2.12 analyze the conic sections; identify and sketch the graphs of a parabola, circle, ellipse, and hyperbola and convert between graphs and equations.	M.O.A2.2.12
	Algebra II	M.O.A2.2.13 solve absolute value inequalities graphically, numerically and algebraically and express the solution set in interval notation.	M.O.A2.2.13

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra II	M.O.A2.2.15 identify a real life situation that exhibits characteristics of change that can be modeled by a quadratic equations; pose a questions; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize and analyze related data; extend the nature of collected, discrete data to that of a continuous function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	M.O.A2.2.15
	Algebra II	M.O.A2.2.16 describe and illustrate how patterns and sequences are used to develop recursive and closed form equations; analyze and describe characteristics of each form.	M.O.A2.2.16
	Algebra II	M.O.A2.2.2 factor higher order polynomials by applying various methods including factoring by grouping and the sum and difference of two cubes; analyze and describe the relationship between the factored form and the graphical representation.	M.O.A2.2.2
	Algebra II	M.O.A2.2.7 define a function and find its zeros; express the domain and range using interval notation; find the inverse of a function; find the value of a function for a given element in its domain; and perform basic operations on functions including composition of functions.	M.O.A2.2.7
	Algebra II	M.O.A2.2.8 analyze families of functions and their transformations; recognize linear, quadratic, radical, absolute value, step, piece-wise, and exponential functions; analyze connections among words, graphs, tables and equations when solving practical problems with and without technology.	M.O.A2.2.8
	Algebra II	M.O.A2.2.9 solve quadratic inequalities, graph their solution sets, and express solutions using interval notation.	M.O.A2.2.9
	Algebra III	M.O.A3.2.1 use properties of analytic geometry to justify and use the distance and midpoint formulas and negative reciprocal criterion for nonvertical perpendicular line.	M.O.A3.2.1
	Algebra III	M.O.A3.2.10 analyze a piecewise defined function in multiple representations, to give its domain, intercepts, range, constituent pieces as elementary functions, and end behavior; apply to real world data.	M.O.A3.2.10
	Algebra III	M.O.A3.2.11 determine the average rate of change of a function between any two points on its graph and use this rate to find the equation of a secant line; interpret the average rate of change to solve real world problems; relate signs of average rate of change to the function increasing or decreasing; and demonstrate a geometrical and conceptual understanding of the difference quotient.	M.O.A3.2.11
	Algebra III	M.O.A3.2.12 use synthetic division to divide a polynomial, verify a factor, and determine its roots; compare and contrast synthetic division to long division.	M.O.A3.2.12

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra III	M.O.A3.2.13 investigate how the multiplicity of zeros of polynomial functions affects the graph; characterize a polynomial given the zeros, the behavior of the graph at the zeros, and the endbehavior.	M.O.A3.2.13
	Algebra III	M.O.A3.2.14 given the characteristics of a transformation involving polynomial, radical, absolute value, logarithmic, or exponential functions, determine a representative function; unravel the effect of a series of transformations using multiple representations.	M.O.A3.2.14
	Algebra III	M.O.A3.2.15 define and discuss one-to-one functions including the role of the Vertical and Horizontal Line Tests; use multiple representations in describing the relationship between a function and its inverse, including the domain and range of each; identify and explain the need for appropriate restrictions necessary to guarantee an inverse function; discuss the symmetrical relationship associated with the line y=x between the function and its inverse and explain the geometric reason the symmetry exists; demonstrate how to algebraically verify that two functions are inverses of each other.	M.O.A3.2.15
	Algebra III	M.O.A3.2.16 prioritize relevant techniques to graph a given rational function, explaining the relevance of symmetry, end behavior, and domain and range; use zeros of the denominator to differentiate between vertical asymptotes and points of discontinuity; use long division to determine end behavior and explain the role of quotient and remainder in the process; explain how the factors of the numerator and denominator can be used to analytically and graphically determine where the graph will fall above or below the xaxis.	M.O.A3.2.16
	Algebra III	M.O.A3.2.17 restrict the possible rational zeros of a polynomial function by using the Rational Zeros Theorem and Descartes' Rule of Signs; confirm the real zeros of a polynomial function by using the Remainder and Factor Theorems; approximate zeros of a polynomial or rational function using a graphing utility and the Intermediate Value Theorem.	M.O.A3.2.17
	Algebra III	M.O.A3.2.18 analyze polynomial equations with real coefficients and complex roots using factoring, the Conjugate Roots Theorem, the quadratic formula, or root restricting theorems; confirm roots using numerical and graphical methods; discuss and justify how the graph of a polynomial function gives information about complex zeros.	M.O.A3.2.18
	Algebra III	M.O.A3.2.19 compare and contrast the cases when 0<a<1 and a>1 for the general exponential function f(x) =a x: graphs, asymptotes, domain and range, and transformations. Interpret the number e as a limit and use e to build exponential functions modeling real world applications.	M.O.A3.2.19
	Algebra III	M.O.A3.2.2 factor higher order polynomials by using techniques that can be applied to the factoring of second degree polynomials; relate factored forms of polynomials to graphs, tables, and solutions to problems in context.	M.O.A3.2.2

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Algebra III	M.O.A3.2.21 through algebraic, graphical, numerical, and verbal techniques, solve equations involving radical, exponential, and logarithmic expressions. Formulate strategies to solve real life problems including compound interest and exponential growth and decay.	M.O.A3.2.21
	Algebra III	M.O.A3.2.22 build on the skills of solving linear equations in two variables using elimination, substitution, or matrix methods to solve systems with three or more unknowns involving real world applications. Categorize systems of equations as zero, one, or infinitely many solutions, by both geometric and algebraic methods.	M.O.A3.2.22
	Algebra III	M.O.A3.2.23 work in groups to choose a real life situation that could be modeled by a polynomial, rational, exponential, or logarithmic function, and make a hypothesis, design an experiment, gather data, analyze data, refine the hypothesis into an appropriate mathematical model, use the model to make a prediction, test the prediction using the experimental setup, and compare the results. Present the collaboration as a project using words, graphs, tables, equations, and appropriate presentation tools.	M.O.A3.2.23
	Algebra III	M.O.A3.2.3 relate analytical attributes such as characteristics of zeros, x and y intercepts, symmetry, asymptotes, end behavior, maximum and minimum points, and domain and range, to graphical and algebraic representations of polynomials and rational functions.	M.O.A3.2.3
	Algebra III	M.O.A3.2.4 analyze the discriminant to classify the roots of quadratic equations with real coefficients, and relate the existence of x intercepts of the graph to information obtained from the discriminant.	M.O.A3.2.4
	Algebra III	M.O.A3.2.5 solve equations with extraneous roots; explain why the extraneous roots are excluded from the solution set.	M.O.A3.2.5
	Algebra III	M.O.A3.2.6 compare and contrast the use of interval notation, set notation, and number line representations to express the domain and range of functions.	M.O.A3.2.6
	Algebra III	M.O.A3.2.7 compare and contrast the domain and range of a modeling function with the restricted domain and range used in a real world situation; justify the restricted domain and range choice for a problem in context.	M.O.A3.2.7
	Algebra III	M.O.A3.2.8 differentiate between functions and relations; evaluate, add, subtract, multiply, divide, rationalize, simplify, and compose functions (including rational, radical and those with fractional exponents); express domain and range of functions.	M.O.A3.2.8
	Algebra III	M.O.A3.2.9 convert between graphs and equations of circles identifying important features from either representation; translate from general form to standard form by completing the square and describe readily usable characteristics of each form; represent a circle as two functions graphically and algebraically.	M.O.A3.2.9

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Algebra and Functions Solve problems using algebraic expressions and symbols to represent relationships, patterns and functions of different types.	Conceptual Mathematics	M.O.CM.2.1 use a variety of problem solving strategies (e.g., draw a diagram, look for a pattern, work backwards) to solve real-world problems.	M.O.CM.2.1
	Conceptual Mathematics	M.O.CM.2.2 interpret graphs of functions including linear, quadratic, and exponential.	M.O.CM.2.2
	Conceptual Mathematics	M.O.CM.2.3 solve application problems using linear, quadratic and exponential functions with emphasis on data collection and analysis.	M.O.CM.2.3
	Conceptual Mathematics	M.O.CM.2.4 choose the appropriate formulas to solve workplace problems and judge the reasonableness of the solutions.	M.O.CM.2.4
	Conceptual Mathematics	M.O.CM.2.5 describe and illustrate how calculating costs, simple and compound interest, finance charge, loan payment and tax functions are used to solve real-world problems.	M.O.CM.2.5
	Conceptual Mathematics	M.O.CM.2.6 identify a real life situation that involves investing money over time; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using words, graphs, models, or tables (with and without technology).	M.O.CM.2.6
Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Algebra I	M.O.A1.2.15 describe real life situations involving exponential growth and decay equations including y=2 to the x power and y=(**S**) to the x power; compare the equation with attributes of an associated table and graph to demonstrate an understanding of their interrelationship.	M.O.A1.2.15
	Algebra II	M.O.A2.2.1 determine equations of lines including parallel, perpendicular, vertical and horizontal lines, and compare and contrast the properties of these equations.	M.O.A2.2.1
	Algebra II	M.O.A2.2.16 describe and illustrate how patterns and sequences are used to develop recursive and closed form equations; analyze and describe characteristics of each form.	M.O.A2.2.16
	Algebra II	M.O.A2.2.2 factor higher order polynomials by applying various methods including factoring by grouping and the sum and difference of two cubes; analyze and describe the relationship between the factored form and the graphical representation.	M.O.A2.2.2

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Communication Express mathematical ideas precisely and communicate them coherently and clearly in the language and notation of mathematics.	Algebra III	M.O.A3.2.15 define and discuss one-to-one functions including the role of the Vertical and Horizontal Line Tests; use multiple representations in describing the relationship between a function and its inverse, including the domain and range of each; identify and explain the need for appropriate restrictions necessary to guarantee an inverse function; discuss the symmetrical relationship associated with the line y=x between the function and its inverse and explain the geometric reason the symmetry exists; demonstrate how to algebraically verify that two functions are inverses of each other.	M.O.A3.2.15
	Algebra III	M.O.A3.2.6 compare and contrast the use of interval notation, set notation, and number line representations to express the domain and range of functions.	M.O.A3.2.6
	Conceptual Mathematics	M.O.CM.2.5 describe and illustrate how calculating costs, simple and compound interest, finance charge, loan payment and tax functions are used to solve real-world problems.	M.O.CM.2.5
	Conceptual Mathematics	M.O.CM.5.4 design and conduct probability investigations and then determine, analyze, and communicate the results.	M.O.CM.5.4
	Geometry and Applied Geometry	M.O.G.3.9 identify a real life situation that involves similarity in two or three dimensions; pose a question; make a hypothesis as to the answer, develop, justify, and implement a method to collect, organize, and analyze related data; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra and geometry (with and without technology).	M.O.G.3.9
	Probability and Statistics	M.O.PS.5.1 distinguish between experimental and theoretical probability.	M.O.PS.5.1
Connections Connect ideas from different areas of mathematics (particularly geometry and algebra) to state or solve abstract or applied problems.	Algebra I	M.O.A1.2.21 use multiple representations, such as words, graphs, tables of values and equations, to solve practical problems; describe advantages and disadvantages of the use of each representation.	M.O.A1.2.21
	Algebra III	M.O.A3.2.3 relate analytical attributes such as characteristics of zeros, x and y intercepts, symmetry, asymptotes, end behavior, maximum and minimum points, and domain and range, to graphical and algebraic representations of polynomials and rational functions.	M.O.A3.2.3
	Algebra III	M.O.A3.2.9 convert between graphs and equations of circles identifying important features from either representation; translate from general form to standard form by completing the square and describe readily usable characteristics of each form; represent a circle as two functions graphically and algebraically.	M.O.A3.2.9
	Conceptual Mathematics	M.O.CM.3.3 analyze the connections of various geometric shapes and patterns to art, architecture, and nature.	M.O.CM.3.3

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Connections Connect ideas from different areas of mathematics (particularly geometry and algebra) to state or solve abstract or applied problems.	Conceptual Mathematics	M.O.CM.5.1 relate mathematical content to its historical development.	M.O.CM.5.1
	Conceptual Mathematics	M.O.CM.5.2 integrate other disciplines into the study of mathematics through simulations, research, and projects.	M.O.CM.5.2
	Conceptual Mathematics	M.O.CM.5.7 apply the measures of central tendency and the measures of dispersion to workplace situations.	M.O.CM.5.7
	Conceptual Mathematics	M.O.CM.5.8 use statistical tools for workplace applications such as quality control, marketing and predicting trends.	M.O.CM.5.8
Data, Statistics, and Probability Analyze data, understand descriptive statistics, make inferences and determine the likelihood that certain events will occur.	Algebra I	M.O.A1.2.19 gather data to create histograms, box plots, scatter plots and normal distribution curves and use them to draw and support conclusions about the data.	M.O.A1.2.19
	Algebra I	M.O.A1.2.20 design experiments to model and solve problems using the concepts of sample space and probability distribution.	M.O.A1.2.20
	Conceptual Mathematics	M.O.CM.5.1 relate mathematical content to its historical development.	M.O.CM.5.1
	Conceptual Mathematics	M.O.CM.5.2 integrate other disciplines into the study of mathematics through simulations, research, and projects.	M.O.CM.5.2
	Conceptual Mathematics	M.O.CM.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations, develop conclusions and offer solutions for new situations, using real-world data.	M.O.CM.5.3
	Conceptual Mathematics	M.O.CM.5.4 design and conduct probability investigations and then determine, analyze, and communicate the results.	M.O.CM.5.4
	Conceptual Mathematics	M.O.CM.5.5 collect and interpret data using various methods of displaying numerical data, including frequency distributions, graphs, histograms, stem-and-leaf plots, and box-and-whiskers plots, using technology when appropriate.	M.O.CM.5.5
	Conceptual Mathematics	M.O.CM.5.6 relate the measures of central tendency and the measures of dispersion to a normal distribution.	M.O.CM.5.6
	Conceptual Mathematics	M.O.CM.5.7 apply the measures of central tendency and the measures of dispersion to workplace situations.	M.O.CM.5.7

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Data, Statistics, and Probability Analyze data, understand descriptive statistics, make inferences and determine the likelihood that certain events will occur.	Conceptual Mathematics	M.O.CM.5.8 use statistical tools for workplace applications such as quality control, marketing and predicting trends.	M.O.CM.5.8
	Probability and Statistics	M.O.PS.5.1 distinguish between experimental and theoretical probability.	M.O.PS.5.1
	Probability and Statistics	M.O.PS.5.10 identify a real life situation that involves statistical concepts including a t-test, make a hypothesis as to the outcome; develop, justify, and implement a method to collect, organize and analyze data; generalize the results to make a conclusion, compare the hypothesis and the conclusion; present the project using predictive and analytic tools (with and without technology).	M.O.PS.5.10
	Probability and Statistics	M.O.PS.5.2 using a real-world problem solving investigation, create and interpret data using various methods of displaying circle graphs, histograms, and frequency curves, make predictions, include information concerning outliers, present and justify results.	M.O.PS.5.2
	Probability and Statistics	M.O.PS.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations.	M.O.PS.5.3
	Probability and Statistics	M.O.PS.5.4 express the chances of events occurring either in terms of a probability or odds.	M.O.PS.5.4
	Probability and Statistics	M.O.PS.5.5 use the normal distribution and the binomial distribution including Pascal's triangle, to determine probability of events.	M.O.PS.5.5
	Probability and Statistics	M.O.PS.5.6 analyze measures of central tendency (mean, median, and mode) from data presented in a variety of forms such as charts, tables, and graphs or from data created through experimentation.	M.O.PS.5.6
	Probability and Statistics	M.O.PS.5.7 interpret and calculate measures of dispersions (range and standard deviation) from data presented in a variety of forms such as charts, tables and graphs or from data created through experimentation.	M.O.PS.5.7
	Probability and Statistics	M.O.PS.5.9 analyze the role of sampling, randomness, bias, and sample size in data collection and interpretation.	M.O.PS.5.9
Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Conceptual Mathematics	M.O.CM.3.1 apply concepts of geometry including the Pythagorean Theorem, similar triangles, and right triangle trigonometry.	M.O.CM.3.1
	Conceptual Mathematics	M.O.CM.3.2 compute measures to solve real-world problems, using relationships involving perimeter, area, surface area and volume of geometric figures.	M.O.CM.3.2

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Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Conceptual Mathematics	M.O.CM.3.3 analyze the connections of various geometric shapes and patterns to art, architecture, and nature.	M.O.CM.3.3
	Geometry and Applied Geometry	M.O.G.3.1 represent geometric figures, such as points, lines, planes, segments, rays, and angles pictorially with proper identification and distinguish between undefined and defined terms.	M.O.G.3.1
	Geometry and Applied Geometry	M.O.G.3.10 investigate measures of angles and lengths of segments to determine the existence of a triangle (triangle inequality) and to establish the relationship between the measures of the angles and the length of the sides (with and without technology).	M.O.G.3.10
	Geometry and Applied Geometry	M.O.G.3.11 verify and justify the basis for the trigonometric ratios by applying properties of similar triangles and use the results to find inaccessible heights and distances. Using the ratios of similar triangles to find unknown side lengths and angle measures, construct a physical model that illustrates the use of a scale drawing in a real-world situation.	M.O.G.3.11
	Geometry and Applied Geometry	M.O.G.3.12 apply the Pythagorean Theorem and its converse to solve real-world problems and derive the special right triangle relationships (i.e. 30-60-90, 45-45-90).	M.O.G.3.12
	Geometry and Applied Geometry	M.O.G.3.13 investigate measures of angles formed by chords, tangents, and secants of a circle and draw conclusions for the relationship to its arcs.	M.O.G.3.13
	Geometry and Applied Geometry	M.O.G.3.14 find angle measures of interior and exterior angles; given a polygon, find the length of sides from given data; and use properties of regular polygons to find any unknown measurements of sides or angles.	M.O.G.3.14
	Geometry and Applied Geometry	M.O.G.3.15 develop properties of tessellating figures and use those properties to tessellate the plane.	M.O.G.3.15
	Geometry and Applied Geometry	M.O.G.3.16 derive and justify formulas for area, perimeter, surface area, and volume using nets and apply them to solve real-world problems.	M.O.G.3.16
	Geometry and Applied Geometry	M.O.G.3.17 apply concepts of analytical geometry such as formulas for distance, slope, and midpoint and apply these to finding dimensions of polygons on the coordinate plane.	M.O.G.3.17
	Geometry and Applied Geometry	M.O.G.3.18 construct a triangle's medians, altitudes, angle and perpendicular bisectors using various methods; and develop logical concepts about their relationships to be used in solving real-world problems.	M.O.G.3.18

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Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Geometry and Applied Geometry	M.O.G.3.19 create and apply concepts using transformational geometry and laws of symmetry, of a reflection, translation, rotation, glide reflection, dilation of a figure, and develop logical arguments for congruency and similarity.	M.O.G.3.19
	Geometry and Applied Geometry	M.O.G.3.2 differentiate and apply inductive and deductive reasoning, justify conclusions in real-world settings.	M.O.G.3.2
	Geometry and Applied Geometry	M.O.G.3.20 compare and contrast Euclidean geometry to other geometries (i.e. spherical, elliptic) using various forms of communication such as development of physical models, oral or written reports.	M.O.G.3.20
	Geometry and Applied Geometry	M.O.G.3.21 approximate the area of irregularly shaped regions based on the approximations and the attributes of the related region, develop a formula for finding the area of irregularly shaped regions. Plan, organize and present results by justifying conclusions.	M.O.G.3.21
	Geometry and Applied Geometry	M.O.G.3.4 validate conclusions by constructing logical arguments using both formal and informal methods with direct and indirect reasoning.	M.O.G.3.4
	Geometry and Applied Geometry	M.O.G.3.5 construct formal and informal proofs by applying definitions, theorems, and postulates related to such topics as complementary, supplementary, vertical angles, angles formed by perpendicular lines, and justify the steps.	M.O.G.3.5
	Geometry and Applied Geometry	M.O.G.3.6 compare and contrast the relationships between angles formed by two lines cut by a transversal when lines are parallel and when they are not parallel, and use the results to develop concepts that will justify parallelism.	M.O.G.3.6
	Geometry and Applied Geometry	M.O.G.3.7 make conjectures and justify congruence relationships with an emphasis on triangles and employ these relationships to solve problems.	M.O.G.3.7
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals parallelograms	M.O.G.3.8.a
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals rectangles	M.O.G.3.8.b

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Geometry and Measurement Solve problems based on understanding the properties of shapes, such as triangles and circles, and the spatial relationships between angles and lines.	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals rhombuses	M.O.G.3.8.c
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals squares	M.O.G.3.8.d
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals trapezoids	M.O.G.3.8.e
	Geometry and Applied Geometry	M.O.G.3.9 identify a real life situation that involves similarity in two or three dimensions; pose a question; make a hypothesis as to the answer, develop, justify, and implement a method to collect, organize, and analyze related data; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra and geometry (with and without technology).	M.O.G.3.9
Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra I	M.O.A1.2.10 simplify and evaluate algebraic expressions add and subtract polynomials	M.O.A1.2.10.a
	Algebra I	M.O.A1.2.10 simplify and evaluate algebraic expressions multiply and divide binomials by binomials or monomials	M.O.A1.2.10.b
	Algebra I	M.O.A1.2.13 simplify radical expressions through adding, subtracting, multiplying and dividing	M.O.A1.2.13.a

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra I	M.O.A1.2.13 simplify radical expressions exact and approximate forms	M.O.A1.2.13.b
	Algebra I	M.O.A1.2.14 choose the most efficient method to solve quadratic equations by graphing (with and without technology), factoring, and quadratic formula and draw reasonable conclusions about a situation being modeled.	M.O.A1.2.14
	Algebra I	M.O.A1.2.16 simplify and evaluate rational expressions add, subtract, multiply and divide	M.O.A1.2.16.a
	Algebra I	M.O.A1.2.16 simplify and evaluate rational expressions determine when an expression is undefined.	M.O.A1.2.16.b
	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), use the equation to predict specific values of a variable.	M.O.A1.2.17.d
	Algebra I	M.O.A1.2.18 compute and interpret the expected value of random variables in simple cases using simulations and rules of probability (with and without technology).	M.O.A1.2.18
	Algebra I	M.O.A1.2.2 create and solve multi-step linear equations, absolute value equations, and linear inequalities in one variable, (with and without technology); apply skills toward solving practical problems such as distance, mixtures or motion and judge the reasonableness of solutions.	M.O.A1.2.2
	Algebra I	M.O.A1.2.20 design experiments to model and solve problems using the concepts of sample space and probability distribution.	M.O.A1.2.20
	Algebra I	M.O.A1.2.3 evaluate data provided, given a real-world situation, select an appropriate literal equation and solve for a needed variable.	M.O.A1.2.3
	Algebra I	M.O.A1.2.4 develop and test hypotheses to derive the laws of exponents and use them to perform operations on expressions with integral exponents.	M.O.A1.2.4

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra I	M.O.A1.2.6 determine the slope of a line through a variety of strategies (e.g. given an equation or graph).	M.O.A1.2.6
	Algebra I	M.O.A1.2.7 analyze situations and solve problems by determining the equation of a line given a graph of a line, two points on the line, the slope and a point, or the slope and y intercept.	M.O.A1.2.7
	Algebra II	M.O.A2.2. 5 solve quadratic equations over the set of complex numbers: apply the techniques of factoring, completing the square, and the quadratic formula; use the discriminate to determine the number and nature of the roots; identify the maxima and minima; use words, graphs, tables, and equations to generate and analyze solutions to practical problems..	M.O.A2.2. 5
	Algebra II	M.O.A2.2.10 solve and graph the solution set of systems of linear inequalities in two variables by finding the maximum or minimum values of a function over the feasible region using linear programming techniques.	M.O.A2.2.10
	Algebra II	M.O.A2.2.11 solve practical problems involving direct, inverse and joint variation.	M.O.A2.2.11
	Algebra II	M.O.A2.2.13 solve absolute value inequalities graphically, numerically and algebraically and express the solution set in interval notation.	M.O.A2.2.13
	Algebra II	M.O.A2.2.7 define a function and find its zeros; express the domain and range using interval notation; find the inverse of a function; find the value of a function for a given element in its domain; and perform basic operations on functions including composition of functions.	M.O.A2.2.7
	Algebra II	M.O.A2.2.9 solve quadratic inequalities, graph their solution sets, and express solutions using interval notation.	M.O.A2.2.9
	Algebra III	M.O.A3.2.11 determine the average rate of change of a function between any two points on its graph and use this rate to find the equation of a secant line; interpret the average rate of change to solve real world problems; relate signs of average rate of change to the function increasing or decreasing; and demonstrate a geometrical and conceptual understanding of the difference quotient.	M.O.A3.2.11
	Algebra III	M.O.A3.2.12 use synthetic division to divide a polynomial, verify a factor, and determine its roots; compare and contrast synthetic division to long division.	M.O.A3.2.12
	Algebra III	M.O.A3.2.14 given the characteristics of a transformation involving polynomial, radical, absolute value, logarithmic, or exponential functions, determine a representative function; unravel the effect of a series of transformations using multiple representations.	M.O.A3.2.14

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Algebra III	M.O.A3.2.17 restrict the possible rational zeros of a polynomial function by using the Rational Zeros Theorem and Descartes' Rule of Signs; confirm the real zeros of a polynomial function by using the Remainder and Factor Theorems; approximate zeros of a polynomial or rational function using a graphing utility and the Intermediate Value Theorem.	M.O.A3.2.17
	Algebra III	M.O.A3.2.21 through algebraic, graphical, numerical, and verbal techniques, solve equations involving radical, exponential, and logarithmic expressions. Formulate strategies to solve real life problems including compound interest and exponential growth and decay.	M.O.A3.2.21
	Algebra III	M.O.A3.2.22 build on the skills of solving linear equations in two variables using elimination, substitution, or matrix methods to solve systems with three or more unknowns involving real world applications. Categorize systems of equations as zero, one, or infinitely many solutions, by both geometric and algebraic methods.	M.O.A3.2.22
	Algebra III	M.O.A3.2.5 solve equations with extraneous roots; explain why the extraneous roots are excluded from the solution set.	M.O.A3.2.5
	Algebra III	M.O.A3.2.8 differentiate between functions and relations; evaluate, add, subtract, multiply, divide, rationalize, simplify, and compose functions (including rational, radical and those with fractional exponents); express domain and range of functions.	M.O.A3.2.8
	Conceptual Mathematics	M.O.CM.2.1 use a variety of problem solving strategies (e.g., draw a diagram, look for a pattern, work backwards) to solve real-world problems.	M.O.CM.2.1
	Conceptual Mathematics	M.O.CM.2.3 solve application problems using linear, quadratic and exponential functions with emphasis on data collection and analysis.	M.O.CM.2.3
	Conceptual Mathematics	M.O.CM.2.4 choose the appropriate formulas to solve workplace problems and judge the reasonableness of the solutions.	M.O.CM.2.4
	Conceptual Mathematics	M.O.CM.3.2 compute measures to solve real-world problems, using relationships involving perimeter, area, surface area and volume of geometric figures.	M.O.CM.3.2
	Conceptual Mathematics	M.O.CM.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations, develop conclusions and offer solutions for new situations, using real-world data.	M.O.CM.5.3
	Geometry and Applied Geometry	M.O.G.3.12 apply the Pythagorean Theorem and its converse to solve real-world problems and derive the special right triangle relationships (i.e. 30-60-90, 45-45-90).	M.O.G.3.12

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Problem Solving Solve abstract and practical problems, applying and adapting a variety of strategies. Monitor progress and evaluate answers in terms of questions asked.	Geometry and Applied Geometry	M.O.G.3.14 find angle measures of interior and exterior angles; given a polygon, find the length of sides from given data; and use properties of regular polygons to find any unknown measurements of sides or angles.	M.O.G.3.14
	Geometry and Applied Geometry	M.O.G.3.17 apply concepts of analytical geometry such as formulas for distance, slope, and midpoint and apply these to finding dimensions of polygons on the coordinate plane.	M.O.G.3.17
	Geometry and Applied Geometry	M.O.G.3.18 construct a triangle's medians, altitudes, angle and perpendicular bisectors using various methods; and develop logical concepts about their relationships to be used in solving real-world problems.	M.O.G.3.18
	Probability and Statistics	M.O.PS.5.4 express the chances of events occurring either in terms of a probability or odds.	M.O.PS.5.4
	Probability and Statistics	M.O.PS.5.5 use the normal distribution and the binomial distribution including Pascal's triangle, to determine probability of events.	M.O.PS.5.5
	Probability and Statistics	M.O.PS.5.7 interpret and calculate measures of dispersions (range and standard deviation) from data presented in a variety of forms such as charts, tables and graphs or from data created through experimentation.	M.O.PS.5.7
Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), compare and evaluate methods of fitting lines to data.	M.O.A1.2.17.a
	Algebra I	M.O.A1.2.5 analyze a given set of data and prove the existence of a pattern numerically, algebraically and graphically, write equations from the patterns and make inferences and predictions based on observing the pattern.	M.O.A1.2.5
	Algebra I	M.O.A1.2.8 identify a real life situation that involves a constant rate of change; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; extend the nature of collected, discrete data to that of a continuous linear function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	M.O.A1.2.8

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Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Algebra II	M.O.A2.2.15 identify a real life situation that exhibits characteristics of change that can be modeled by a quadratic equations; pose a questions; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize and analyze related data; extend the nature of collected, discrete data to that of a continuous function that describes the known data set; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using the predictive and analytic tools of algebra (with and without technology).	M.O.A2.2.15
	Algebra II	M.O.A2.2.8 analyze families of functions and their transformations; recognize linear, quadratic, radical, absolute value, step, piece-wise, and exponential functions; analyze connections among words, graphs, tables and equations when solving practical problems with and without technology.	M.O.A2.2.8
	Algebra III	M.O.A3.2.1 use properties of analytic geometry to justify and use the distance and midpoint formulas and negative reciprocal criterion for nonvertical perpendicular lines.	M.O.A3.2.1
	Algebra III	M.O.A3.2.13 investigate how the multiplicity of zeros of polynomial functions affects the graph; characterize a polynomial given the zeros, the behavior of the graph at the zeros, and the endbehavior.	M.O.A3.2.13
	Algebra III	M.O.A3.2.16 prioritize relevant techniques to graph a given rational function, explaining the relevance of symmetry, end behavior, and domain and range; use zeros of the denominator to differentiate between vertical asymptotes and points of discontinuity; use long division to determine end behavior and explain the role of quotient and remainder in the process; explain how the factors of the numerator and denominator can be used to analytically and graphically determine where the graph will fall above or below the xaxis.	M.O.A3.2.16
	Algebra III	M.O.A3.2.18 analyze polynomial equations with real coefficients and complex roots using factoring, the Conjugate Roots Theorem, the quadratic formula, or root restricting theorems; confirm roots using numerical and graphical methods; discuss and justify how the graph of a polynomial function gives information about complex zeros.	M.O.A3.2.18
	Algebra III	M.O.A3.2.19 compare and contrast the cases when 0<a<1 and a>1 for the general exponential function f(x) =a x: graphs, asymptotes, domain and range, and transformations. Interpret the number e as a limit and use e to build exponential functions modeling real world applications.	M.O.A3.2.19

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Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Algebra III	M.O.A3.2.23 work in groups to choose a real life situation that could be modeled by a polynomial, rational, exponential, or logarithmic function, and make a hypothesis, design an experiment, gather data, analyze data, refine the hypothesis into an appropriate mathematical model, use the model to make a prediction, test the prediction using the experimental setup, and compare the results. Present the collaboration as a project using words, graphs, tables, equations, and appropriate presentation tools.	M.O.A3.2.23
	Algebra III	M.O.A3.2.4 analyze the discriminant to classify the roots of quadratic equations with real coefficients, and relate the existence of x intercepts of the graph to information obtained from the discriminant.	M.O.A3.2.4
	Algebra III	M.O.A3.2.7 compare and contrast the domain and range of a modeling function with the restricted domain and range used in a real world situation; justify the restricted domain and range choice for a problem in context.	M.O.A3.2.7
	Conceptual Mathematics	M.O.CM.2.2 interpret graphs of functions including linear, quadratic, and exponential.	M.O.CM.2.2
	Conceptual Mathematics	M.O.CM.2.6 identify a real life situation that involves investing money over time; pose a question; make a hypothesis as to the answer; develop, justify, and implement a method to collect, organize, and analyze related data; generalize the results to make a conclusion; compare the hypothesis and the conclusion; present the project numerically, analytically, graphically and verbally using words, graphs, models, or tables (with and without technology).	M.O.CM.2.6
	Conceptual Mathematics	M.O.CM.5.6 relate the measures of central tendency and the measures of dispersion to a normal distribution.	M.O.CM.5.6
	Geometry and Applied Geometry	M.O.G.3.10 investigate measures of angles and lengths of segments to determine the existence of a triangle (triangle inequality) and to establish the relationship between the measures of the angles and the length of the sides (with and without technology).	M.O.G.3.10
	Geometry and Applied Geometry	M.O.G.3.11 verify and justify the basis for the trigonometric ratios by applying properties of similar triangles and use the results to find inaccessible heights and distances. Using the ratios of similar triangles to find unknown side lengths and angle measures, construct a physical model that illustrates the use of a scale drawing in a real-world situation.	M.O.G.3.11
	Geometry and Applied Geometry	M.O.G.3.13 investigate measures of angles formed by chords, tangents, and secants of a circle and draw conclusions for the relationship to its arcs.	M.O.G.3.13
	Geometry and Applied Geometry	M.O.G.3.15 develop properties of tessellating figures and use those properties to tessellate the plane.	M.O.G.3.15

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Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Geometry and Applied Geometry	M.O.G.3.16 derive and justify formulas for area, perimeter, surface area, and volume using nets and apply them to solve real-world problems.	M.O.G.3.16
	Geometry and Applied Geometry	M.O.G.3.19 create and apply concepts using transformational geometry and laws of symmetry, of a reflection, translation, rotation, glide reflection, dilation of a figure, and develop logical arguments for congruency and similarity.	M.O.G.3.19
	Geometry and Applied Geometry	M.O.G.3.2 differentiate and apply inductive and deductive reasoning, justify conclusions in real-world settings.	M.O.G.3.2
	Geometry and Applied Geometry	M.O.G.3.20 compare and contrast Euclidean geometry to other geometries (i.e. spherical, elliptic) using various forms of communication such as development of physical models, oral or written reports.	M.O.G.3.20
	Geometry and Applied Geometry	M.O.G.3.4 validate conclusions by constructing logical arguments using both formal and informal methods with direct and indirect reasoning.	M.O.G.3.4
	Geometry and Applied Geometry	M.O.G.3.5 construct formal and informal proofs by applying definitions, theorems, and postulates related to such topics as complementary, supplementary, vertical angles, angles formed by perpendicular lines, and justify the steps.	M.O.G.3.5
	Geometry and Applied Geometry	M.O.G.3.6 compare and contrast the relationships between angles formed by two lines cut by a transversal when lines are parallel and when they are not parallel, and use the results to develop concepts that will justify parallelism.	M.O.G.3.6
	Geometry and Applied Geometry	M.O.G.3.7 make conjectures and justify congruence relationships with an emphasis on triangles and employ these relationships to solve problems.	M.O.G.3.7
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals parallelograms	M.O.G.3.8.a
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals rectangles	M.O.G.3.8.b

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	Course/ Level	Standard	Standard ID
Reasoning Develop and use mathematical arguments and proofs to explore the truth of conjectures and justify conclusions.	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals rhombuses	M.O.G.3.8.c
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals squares	M.O.G.3.8.d
	Geometry and Applied Geometry	M.O.G.3.8 identify general properties of and compare and contrast the properties of convex and concave quadrilaterals trapezoids	M.O.G.3.8.e
	Probability and Statistics	M.O.PS.5.10 identify a real life situation that involves statistical concepts including a t-test, make a hypothesis as to the outcome; develop, justify, and implement a method to collect, organize and analyze data; generalize the results to make a conclusion, compare the hypothesis and the conclusion; present the project using predictive and analytic tools (with and without technology).	M.O.PS.5.10
	Probability and Statistics	M.O.PS.5.6 analyze measures of central tendency (mean, median, and mode) from data presented in a variety of forms such as charts, tables, and graphs or from data created through experimentation.	M.O.PS.5.6
	Probability and Statistics	M.O.PS.5.9 analyze the role of sampling, randomness, bias, and sample size in data collection and interpretation.	M.O.PS.5.9
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems.	Algebra I	M.O.A1.2.1 formulate algebraic expressions for use in equations and inequalities that require planning to accurately model real-world problems.	M.O.A1.2.1
	Algebra I	M.O.A1.2.11 create polynomials to represent and solve problems from real-world situations while focusing on symbolic and graphical patterns.	M.O.A1.2.11
	Algebra I	M.O.A1.2.12 use area models and graphical representations to develop and explain appropriate methods of factoring.	M.O.A1.2.12

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	Course/ Level	Standard	Standard ID
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems.	Algebra I	M.O.A1.2.17 perform a linear regression (with and without technology), identify the equation for the line of regression,	M.O.A1.2.17.b
	Algebra I	M.O.A1.2.19 gather data to create histograms, box plots, scatter plots and normal distribution curves and use them to draw and support conclusions about the data.	M.O.A1.2.19
	Algebra I	M.O.A1.2.9 create and solve systems of linear equations graphically and numerically using the elimination method and the substitution method, given a real-world situation.	M.O.A1.2.9
	Algebra II	M.O.A2.2. 4 simplify expressions involving radicals and fractional exponents, convert between the two forms, and solve equations containing radicals and exponents.	M.O.A2.2. 4
	Algebra II	M.O.A2.2.12 analyze the conic sections; identify and sketch the graphs of a parabola, circle, ellipse, and hyperbola and convert between graphs and equations.	M.O.A2.2.12
	Algebra III	M.O.A3.2.10 analyze a piecewise defined function in multiple representations, to give its domain, intercepts, range, constituent pieces as elementary functions, and end behavior; apply to real world data.	M.O.A3.2.10
	Algebra III	M.O.A3.2.2 factor higher order polynomials by using techniques that can be applied to the factoring of second degree polynomials; relate factored forms of polynomials to graphs, tables, and solutions to problems in context.	M.O.A3.2.2
	Conceptual Mathematics	M.O.CM.3.1 apply concepts of geometry including the Pythagorean Theorem, similar triangles, and right triangle trigonometry.	M.O.CM.3.1
	Conceptual Mathematics	M.O.CM.5.5 collect and interpret data using various methods of displaying numerical data, including frequency distributions, graphs, histograms, stem-and-leaf plots, and box-and-whiskers plots, using technology when appropriate.	M.O.CM.5.5
	Geometry and Applied Geometry	M.O.G.3.1 represent geometric figures, such as points, lines, planes, segments, rays, and angles pictorially with proper identification and distinguish between undefined and defined terms.	M.O.G.3.1
.	Geometry and Applied Geometry	M.O.G.3.21 approximate the area of irregularly shaped regions based on the approximations and the attributes of the related region, develop a formula for finding the area of irregularly shaped regions. Plan, organize and present results by justifying conclusions.	M.O.G.3.21

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	Course/ Level	Standard	Standard ID
Representation Use and translate among representations including verbal, numerical, symbolic and graphical to communicate mathematical ideas and solve problems.	Probability and Statistics	M.O.PS.5.2 using a real-world problem solving investigation, create and interpret data using various methods of displaying circle graphs, histograms, and frequency curves, make predictions, include information concerning outliers, present and justify results.	M.O.PS.5.2
	Probability and Statistics	M.O.PS.5.3 determine possible outcomes using tree diagrams and the counting principles of permutations and combinations.	M.O.PS.5.3