FSA Algebra 1 EOC	
Achievement Level	Achievement Level Descriptions
Level 1	Students performing at Level 1 are just beginning to access the challenging content of the *Florida Standards*.
Level 2	A student performing at Level 2 typically • adds two polynomials with integral coefficient, including adding when multiplying a constant to one or both polynomials using the distributive property is required • applies and explains properties of integer exponents • calculates the average rate of change of a function represented by a graph, table of values, or set of data (which may or may not be linear) • chooses the correct equivalent forms of a trinomial whose leading coefficient is 1 • chooses the correct justifications for the steps in a two-step equation, $ax + b = c$ • combines standard function types using addition and subtraction when the functions are given within a real-world context • compares properties of two linear functions, each represented a different way • completes a two-way frequency table that requires completion of frequencies • constructs linear functions of arithmetic sequences when given a graph • converts radical notation to rational exponent notation and vice versa • creates a scatter plot of bivariate data • describes how the graph of a linear and exponential function compare • determines an integral solution for $f(x) = g(x)$ given graphs or tables of linear, quadratic, or exponential functions • determines the mean/median and interquartile range of a single set of data from a visual representation (e.g., table) • distinguishes between coordinates that are solutions to linear equations • evaluates simple functions • factors expressions with only monomial factors and chooses the correct equivalent forms of a trinomial whose leading coefficient is 1 • identifies a solution region when the graph of a linear inequality is given • identifies an arithmetic sequence as a linear function when the sequence is presented as a sequence with an integral common difference • identifies an equivalent system of two equations in two variables that has a multiple of one of the equations of the original system • identifies constraints that are constant values or simple linear equations/inequalities • identifies dot plots, histograms, and box plots for a given set of data in a real-world context • identifies relationships in tables and graphs that can be modeled with a linear function or an exponential function • identifies the graph of a linear, simple quadratic, or simple exponential function given its equation

	• identifies the graph, the equation, or ordered pairs of a linear, quadratic, or exponential function with a vertical or horizontal shift • identifies the key features when given a linear, quadratic, or exponential graph • identifies which function is a linear function, an exponential function, or a quadratic function given in real-world context by interpreting the function's graph or table • identifies which values are constant from a given context • interprets and identifies domains of linear functions when presented with a graph • interprets coefficients or terms of exponential and quadratic expressions • interprets or explains the properties of the a in y = ab^x • interprets the zeros when ax^2 + b = c, where a, b, and c are integers, for a real-world context • solves a literal linear equation in a real-world context for a variable whose coefficient is 1 • solves a system of linear equations approximately when given a graph of the system; solves a system of equations using elimination in the form of ax + by = c and dx + ey = f with integral coefficients, where only one equation requires multiplication; solves a simple system of equations that require substitution • solves linear equations (with variable on one side and simple benchmark fractions as the coefficient; may require the use of the distributive property and adding like terms) and inequalities (with a variable on one side and positive coefficient that may include a simple benchmark fraction as the coefficient) in one variable • solves zeros of quadratics of the form ax^2 + b = c, where a, b, and c are integers or of the form x^2 + c = d, where c and d are rational numbers • uses properties of exponents (one operation) and identifies the new base of an exponential function • uses the definition of a function to identify whether a relation represented by a graph, a table, mapping, diagrams, or sets of ordered pairs is a function • writes or chooses a one-variable linear equation or inequality in a real-world context • writes or chooses a two-variable linear equation for a real-world context with integral coefficients

Level 3	A student performing at Level 3 typically • adds and subtracts polynomials, including adding or subtracting when one or both polynomials is multiplied by a monomial or binomial, with a degree no greater than 1 • assimilates that a function's domain is assigned to exactly one element of the range in function notation • calculates residuals • calculates the average rate of change for a quadratic function or exponential function that is presented algebraically • chooses an explanation as to why a context may be modeled by a linear or exponential function • chooses the correct justifications for the steps in an equation of the form a(bx + c) = d or ax + b = cx + d, where a, b, c, and d are integers • combines standard function types using addition, subtraction, and multiplication when the functions are given within the context; writes a composition of functions that involve two linear functions in a real-world context • compares the properties of two functions of the same type with different representations (such as a quadratic to a quadratic but using a table and an equation) • differentiates between linear and quadratic functions that are represented using different representations (table, graph, or algebraic) • compares the similarities or differences in mean, median, and interquartile range between two sets of data • predicts the effect of an outlier on the shape and center of a data set; uses the empirical rule with data values that are one or more standard deviation about the mean • completes a table of values for a function that has a vertical or horizontal shift • completes an informal proof to show that a sum or product of two rational numbers is rational, that the sum of a rational number and an irrational number is irrational, and that the product of a nonzero rational number and an irrational number is irrational • completes the square when the leading coefficient is 1 • constructs or identifies a linear function, an explicit function, a recursive formula for an arithmetic sequence, or a regression equation given a graph, input-output pairs, or using x- and y-intercepts • constructs the graph of a linear function, quadratic, or exponential given its equation • creates or completes a two-way frequency table when up to two joint, marginal, or conditional relative frequencies are described within the context; finds the values for joint, marginal, or conditional relative frequency • defines rational exponents by extending the properties of integer exponents • determines a solution to the nearest tenth for f(x) = g(x) given a graph or a table • determines the value of k given a graph and its transformation • distinguishes between coordinates that are solutions to equations in two variables (quadratic or exponential) and those that are not • evaluates quadratic, polynomial of degree 3, absolute value, square root, and

	exponential functions for inputs in their domain • explains whether a system of equations has one, infinitely many, or no solutions • factors the difference of two squares with a degree of 2, and trinomials with a degree of 2 whose leading coefficient has up to 4 factors • graphs solutions of the system of two linear inequalities and identifies the solution set as a region of the coordinate plane that satisfies both inequalities; if the form is written in ax + by < c format, then a, b, and c should be integers • graphs the graph of a linear or quadratic function with a vertical or horizontal stretch or shrink • identifies an exponential regression model that fits the data • identifies a linear, quadratic, or exponential regression model that fits the data; uses a regression equation to solve problems within the context • identifies a quadratic regression model that fits the data; uses a regression equation to solve problems within the context • identifies an equivalent system that has a sum of the original as one of the equations and a multiple of the other • identifies equivalent forms of expressions involving rational exponents and radical expressions where there is one operation • identifies that a geometric sequence is a function when the sequence is presented as a sequence, graph, or table • identifies that an exponential growth function will eventually increase faster than a linear function or a quadratic function given in real-world context by interpreting the functions' tables • identifies the graph of a function given in factored form for a polynomial whose leading coefficient is a positive integer • identifies variables in a modeling context • interprets solutions in a real-world context • interprets and identifies domains of quadratic or exponential functions (with no translation) when presented with a graph • interprets and identifies the domain of a linear function from a context • interprets correlation coefficient; calculates residuals • interprets factors of exponential and quadratic expressions • interprets statements that use function notation in terms of a real-world context for simple quadratic, simple square root, and simple exponential • interprets the average rate of change of a function represented by a graph, table of values, or set of data or a linear regression equation • interprets the base value and vertical shifts in an exponential function of the form f(x) = b^x + k, where b is an integer and k can equal zero in a real-world context • interprets the difference in mean, median, and interquartile range in the context of a data set • interprets the key features when given a table of a linear, quadratic, or exponential • interprets the slope and x- and y-intercepts of a linear function given as a verbal description • justifies why taking the square root of both sides when solving a quadratic will yield two solutions

	• proves that exponential functions grow by equal factors over equal intervals • proves that linear functions grow by equal differences over equal intervals • recognizes the domain of a sequence as the set of all integers or a subset of integers • solves a literal equation that requires two procedural steps • solves a system of equations by graphing or substitution (manipulation of equations may be required) or elimination in the form of ax + by = c and dx + ey = f, where multiplication is required for both equations • solves a system of equations with rational coefficients by graphing, substitution, or elimination; interprets solutions in a real-world context • solves linear equations and inequalities that require up to three steps to isolate the variable with rational coefficients • solves quadratic equations of the form x^2 + bx + c = d, where b, c, and d are integers by completing the square, factoring, or using the quadratic formula • uses a regression equation to solve problems within the context • uses real-world data (represented in a table or other display) to create dot plots, histograms, or box plots applying correct labels for components and/or axes, applying appropriate scale in a graph • uses the properties of exponents and names the new rate of an exponential expression/equation/function • writes a single equation that has at least three variables with integral coefficients • writes constraints as a system of linear inequalities or linear equations • writes or chooses a simple exponential (no horizontal or vertical translation) or an explicit function for geometric sequences • writes or chooses a simple quadratic equation
Level 4	<u>A student performing at Level 4 typically</u> • applies and extends knowledge of domain and range to real-world situations and contexts • assimilates that a graph is the set of all the solutions of a given equation • assimilates that a quantity increasing exponentially eventually exceeds a quantity increasing linearly using graphs and tables • assimilates that systems can have the same solution • chooses an interpretation of joint, marginal, and conditional relative frequencies and recognizes possible associations and trends in the data • compares properties of two functions (linear, quadratic, or exponential) each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions) • completes a dot plot, histogram, or box plot for data that requires some interpretation or inference • completes an explanation on how to find an approximate solution to the nearest tenth for f(x) = g(x) given a graph or a table • completes an informal argument on closure; applies multiple operations (excluding division) when simplifying polynomials • completes the square when the leading coefficient is greater than 1 and b/(2a) is an integer • completes steps in the derivation of the quadratic formula

	• constructs exponential functions, including geometric sequences, given input-output pairs, including those in a table • constructs linear functions and exponential functions, including arithmetic sequences and geometric sequences, given input-output pairs, including those in a table • constructs the graph of a quadratic function given the x- and y-intercepts or vertex and end behavior • creates a residual plot and determines whether the function is an appropriate fit for the data; explains why a situation with correlation does not imply causation • creates a rough graph given a polynomial function in factored form whose leading coefficient is an integer • determines the units of a rate of change for a function presented algebraically • differentiates between exponential and quadratic functions that are represented using different representations (table, graph, or algebraic) • explains and justifies the steps in an equation of the form a(bx +c) = d or ax + b = cx + d, where a, b, c, and d are rational numbers • explains and uses the meaning of rational exponents in terms of properties of integer exponents, and uses notation for radicals in terms of rational exponents • explains similarities and differences using specific measures of center and spread, given two sets of data • explains that an exponential growth function will eventually increase faster than a linear function or a quadratic function given in a real-world context by interpreting the functions' graphs or tables • explains why a situation with correlation does not imply causation • factors the difference of two squares with a common integral factor, trinomials with a common integral factor and a leading coefficient having more than four factors and explains the properties of the zeros • generalizes rules for sum and product properties of rational and irrational numbers • identifies non-arithmetic and non-geometric sequences as a function when given as a sequence • identifies situations given as a written description in a real-world context in which one quantity changes at a constant rate per unit interval relative to another or grows by equal factors over equal intervals • identifies the graph of an exponential function with a vertical or horizontal stretch or shrink; completes a table of values for a function with a horizontal or vertical stretch or shrink • identifies the meaning of the variables in a modeling context • interprets key features and properties of a quadratic function • Interprets key features and properties of an exponential function • interprets more than one part of an expression, solutions in a real-world context, and statements that use function notation in terms of context • justifies that a relation is a function using the definition of a function • models constraints in a real-world context using a combination of linear equations/inequalities • predicts the effect of an outlier on the spread of a data set

	• recognizes that a quadratic can yield nonreal solutions and that the quadratic formula is used to find complex solutions • solves a system of equations with rational coefficients • solves linear and literal equations that require at least three procedural steps to solve • solves quadratic equations of the form ax^2 + bx + c = d, where a, b, c, and d are integers and b/a is an even integer • transforms exponential functions that have more than one operation • uses an interpretation to identify the graph • uses function notation to evaluate functions for inputs in their domain • uses the empirical rule with two data values that have integers as standard deviations, up to three, above or below the mean • verifies ordered pairs as being a part of the solution set of a system of inequalities • writes a composition of functions that involve linear and quadratic functions • writes a quadratic equation • writes a recursive formula for a geometric sequence • writes a system of linear equations or writes a single equation that has at least three variables • writes an exponential equation that has a horizontal or vertical translation • writes equivalent forms of expressions involving rational exponents and radical expressions where there are two operations
Level 5	<u>A student performing at Level 5 typically</u> • chooses the correct part of the expression given an interpretation • compares properties of two functions (linear, quadratic, or exponential) when at least one function is described verbally • constructs a graph of a function using intercepts and end behavior in a real-world or mathematical context • constructs exponential functions, including geometric sequences, given the description of a relationship • constructs linear, including arithmetic, sequences given the description of a relationship • derives the quadratic formula • describes and compares the changes of behavior between a linear and an exponential function, including the approximate point(s) of intersection • determines and justifies which type of data plot would be most appropriate for a set of data; identifies advantages and disadvantages of different types of data plots • determines if a quadratic will yield complex solutions • determines the value of k when given a set of ordered pairs for two functions or a table of values for two functions • differentiates between two functions (linear, quadratic, or exponential) when at least one is described verbally • distinguishes variables that are correlated because one is a cause of another • employs the modeling cycle • explains and justifies the steps in an equation of the form a(bx +c) = d(ex +f),

	where a, b, c, d, e, and f are rational numbers • explains closure for polynomials • explains how to find an approximate solution to the nearest tenth for f(x) = g(x) given a graph or a table and justifies why the intersection of two functions is a solution to f(x) = g(x) • explains the differences between equivalent forms and why an equivalent form would provide the required property • explains why the correlation coefficient may not show a strong correlation • explains why the domain of a sequence is the set of all integers or a subset of integers • factors the difference of two squares with a degree of 4 with or without a common integral factor, and a polynomial with a degree of 3 and a leading coefficient of 1 • identifies advantages and disadvantages of using each measure of center and spread • identifies flaws in data where causation is claimed • identifies non-arithmetic and non-geometric sequences as a function when given as a graph or table • interprets and identifies domains of linear, quadratic, or exponential functions when presented a function described within the context • interprets joint, marginal, and conditional relative frequencies; identifies and concludes associations and trends using a two-way frequency table • justifies that a graph is the set of all the solutions of an equation • justifies that an exponential function will eventually increase faster than a linear function or a quadratic function given in a real-world context by interpreting the functions' graphs or tables using rates • justifies why an ordered pair is a part of a solution set • justifies why multiple equivalent systems would have the same solution • plots data based on situations with multiple data sets and then compares and analyzes the data using measures of center and spread to justify which measure(s) are most appropriate for comparison • proves the properties of rational exponents as an extension of the properties of integer exponents • solves linear equations, linear inequalities, and literal equations that require up to four steps • writes a new function that uses both a composition of functions and operations • writes and evaluates functions when the function is described in a real-world context

FSA Geometry EOC	
Achievement Level	Achievement Level Descriptions
Level 1	Students performing at Level 1 are just beginning to access the challenging content of the *Florida Standards*.
Level 2	A student performing at Level 2 typically • calculates density based on a given area when division is the only step required in a real-world context • calculates unknown side lengths using the Pythagorean theorem given a picture of a right triangle • chooses a visual or written step in a construction • determines if two given figures are similar • determines the center and radius of a circle given its equation in general form • determines transformations that preserve distance and angle to those that do not and if a sequence of transformations will result in congruent figures or if a sequence of two transformations will carry a given figure onto itself or onto another figure • finds areas or perimeters of right triangles, rectangles, and squares when given a graphic or volume of cylinders, pyramids, cones, and spheres when given a graphic • finds measures of sides and angles of congruent and similar triangles when given a diagram • finds the point on a line segment that partitions the segment in a given ratio of 1 to 1, given a visual representation of the line segment • gives an informal argument for the formulas for the circumference of a circle and the area of a circle • identifies the corresponding parts of two congruent triangles • identifies that all circles are similar, inscribed and circumscribed circles of a triangle, and a sector area of a circle as a proportion of the entire circle • identifies that the slopes of parallel lines are equal • identifies the scale factors of dilations • identifies the shapes of two-dimensional cross-sections formed by a vertical or horizontal plane • identifies that two triangles are similar using the AA criterion • recognizes the sine, cosine, or tangent ratio when given a picture of a right triangle with two sides and an angle labeled • solves problems using the properties of central angles, diameters, and radii • uses coordinates to prove or disprove that a figure is a parallelogram • uses definitions to choose examples and non-examples • uses measures and properties to model and describe a real-world object that can be modeled by a three-dimensional object • uses properties of parallelograms to find numerical values of a missing side or angle or to select true statements about a parallelogram • uses ratios and a grid system to determine values for dimensions in a real-world context

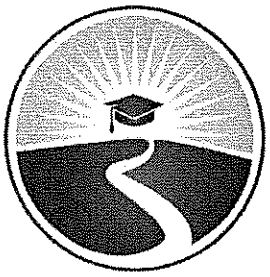
	• uses theorems about parallel lines with one transversal, interior angles of a triangle, vertical angles, or exterior angles of a triangle to solve problems
Level 3	A student performing at Level 3 typically • applies geometric methods to solve design problems where numerical physical constraints are given • applies similarity to solve problems that involve the length of the arc intercepted by an angle and the radius of a circle • calculates density based on area and volume and identifies appropriate unit rates • chooses the properties of dilations when a dilation is presented on a coordinate plane, as a set of ordered pairs, as a diagram, or as a narrative; properties: a dilation takes a line not passing through the center of the dilation to a parallel line and leaves a line passing through the center unchanged, and the dilation of a line segment is longer or shorter in the ratio given by the scale factor • completes no more than two steps of a proof • completes no more than two steps of a proof using theorems about lines and angles • completes the square to find the center and radius of a circle • creates or provides steps for the construction of the inscribed and circumscribed circles of a triangle • defines radian measure as the constant of proportionality • derives the equation of a circle using the Pythagorean theorem, the coordinates of a circle's center, and the circle's radius • describes translations as functions • draws the shape of a particular two-dimensional cross-section that is the result of horizontal or vertical slice of a three-dimensional shape • finds a dimension when given a graphic and the volume for cylinders, pyramids, cones, or spheres • finds area and perimeter of parallelograms and regular polygons where at least two sides have a horizontal or vertical side when given a graphic • finds the point on a line segment that partitions, with no more than five partitions, the segment in a given ratio, given the coordinates for the end points of the line segment • identifies a three-dimensional object generated by rotations of a triangular and rectangular object about a line of symmetry of the object or the location of a horizontal or vertical slice that would give a particular cross-section • identifies, sequences, or reorders steps in a construction • solves for sides of right triangles using trigonometric ratios and the Pythagorean theorem in applied problems • solves problems or provides justifications about relationships using congruence and similarity criteria • solves problems that include the use of algebra for parallel lines with two to three transversals, angles, triangles, parallelograms, or circles that use no more than two properties (excludes tangents) • uses a sequence of no more than two transformations to prove that two circles are similar

	• uses coordinates to prove or disprove properties of triangles, properties of circles, properties of quadrilaterals, or that a figure is a square, right triangle, or rectangle when given a graph • uses dissection arguments and Cavalier's principle for volume of a cylinder, pyramid, and cone • uses given dimensions to answer questions about area, surface area, perimeter, and circumference of a real-world object that can be modeled by composite three-dimensional objects • uses measures and properties to model and describe a real-world object that can be modeled by composite three-dimensional objects • uses or chooses properties of angles for a quadrilateral inscribed in a circle • uses precise definitions that are based on the undefined notions of point, line, distance along a line, and distance around a circular arc • uses ratios and a grid system to determine perimeter, area, or volume • uses rigid motions to transform figures • uses the definition of congruence in terms of rigid motions to determine if two figures are congruent, including that ASA, SAS, SSS, or HL is true for two triangles • uses the definition of similarity in terms of similarity transformations to decide if two figures are similar, to establish the AA criterion for two triangles or if given information is sufficient to determine similarity • uses the relationship between the sine and cosine of complementary angles • uses transformations to develop definitions of angles, perpendicular lines, or parallel lines or to determine if a given figure carries onto itself or onto another figure • writes an equation that models a design problem that involves perimeter, area, or volume of simple composite figures • writes the equation of a line that is parallel or perpendicular when given a point on the line and an equation, in slope-intercept form, of the parallel line or given two points (coordinates are integral) on the line that is parallel • writes the equation of a line that is parallel when given integral coordinates
Level 4	<u>A student performing at Level 4 typically</u> • analyzes possible definitions to determine mathematical accuracy • assimilates that the ratio of two sides in one triangle is equal to the ratio of the corresponding two sides of all other similar triangles leading to definitions of trigonometric ratios for acute angles • chooses correct statements about a design problem that employ the modeling cycle • compares and contrasts different types of slices • completes a proof that requires more than two steps • completes proofs about relationships in geometric figures by using congruence and similarity criteria for triangles • constructs a geometric figure, given physical constraints • creates the equation of a line that is parallel, given a point on the line and an equation, in a form other than slope-intercept or of a line that is perpendicular when given two points or an equation in a form other than slope-intercept

	• derives the equation of the circle using the Pythagorean theorem when given coordinates of a circle's center and a point on the circle • derives the formula for the area of a sector or the property that the length of the arc intercepted by an angle is proportional to the radius • describes rotations and reflections as functions • draws the shape of a particular two-dimensional cross-section that is the result of a nonhorizontal or nonvertical slice of a three-dimensional shape • explains that two figures are congruent using the definition of congruence based on rigid motions or using algebraic descriptions to describe rigid motion that will show ASA, SAS, SSS, or HL is true for two triangles • explains the relationship between the sine and cosine of complementary angles • explains why a dilation takes a line not passing through the center of dilation to a parallel line and leaves a line passing through the center unchanged or that the dilation of a line segment is longer or shorter in ratio given by the scale factor • finds a dimension for a real-world object that can be modeled by a composite three-dimensional figure when given area, volume, surface area, perimeter, and/or circumference • finds area or volume given density • finds the area and perimeter of irregular polygons that are shown on the coordinate plane or of shapes when given coordinates • finds the endpoint on a directed line segment given the partition ratio, the point at the partition, and one endpoint • identifies a three-dimensional object generated by rotations of a closed two-dimensional object about a line of symmetry of the object or the location of a nonhorizontal or nonvertical slice that would give a particular cross-section • identifies sequences or reorders steps in a construction of an equilateral triangle, a square, and a regular hexagon inscribed in a circle • justifies properties of angles of a quadrilateral that is inscribed in a circle • proves that two triangles are similar if two angles of one triangle are congruent to two angles of the other triangle using the properties of similarity transformations • proves theorems about triangles by using triangle similarity • provides an informal argument to prove or disprove properties of triangles, properties of circles, or properties of quadrilaterals • sequences an informal limit argument for the circumference of a circle, the area of a circle, and the volume of a cylinder, pyramid, and cone • shows that corresponding angles of two similar figures are congruent and that their corresponding sides are proportional • solves a density problem by interpreting units • solves for missing angles of right triangles using sine, cosine, and tangent • solves problems involving the volume of composite figures that include a cube or prism, and a cylinder, pyramid, cone, or sphere (a graphic would be given) or the volume when one or more dimensions are changed • solves problems that include algebraic expressions for circles including properties of tangents, for the area of a sector, for the incenter and

	circumcenter of a triangle, the triangle inequality, the Hinge theorem, the midsegment of a triangle, concurrency of angle bisectors, and concurrency of perpendicular bisectors • uses algebraic descriptions to describe rotations and/or reflections that will carry a figure onto itself or onto another figure • uses coordinates to prove or disprove properties of triangles, properties of circles, or properties of quadrilaterals without a graph or regular polygons when given a graph • uses ratios and a grid system to determine surface area or lateral area • uses the measures of different parts of a circle to determine similarity • uses transformations to develop definitions of circles and line segments • writes an equation that models a design problem that involves surface area or lateral area
Level 5	A student performing at Level 5 typically • applies the modeling context to solve problems that require more than one trigonometric ratio and/or the Pythagorean theorem • applies the modeling cycle to determine a measure when given a real-world object that can be modeled by a composite three-dimensional figure or to solve a design problem that involves cost or density • applies transformations that will carry a figure onto another or onto itself, given coordinates of the geometric figure in the stem • compares and contrasts different types of rotations • completes an algebraic proof or writes an explanation to prove or disprove simple geometric theorems • completes proofs using the medians of a triangle meet at a point • creates a proof, given statements and reasons, for points on a perpendicular bisector of a line segment that are exactly those equidistant from the segment's endpoints • derives the equation of a circle using the Pythagorean theorem when given coordinates of a circle's center as variables and the circle's radius as a variable • explains how to derive a formula using an informal argument • explains steps in a construction • explains using the definition of similarity in terms of similarity transformations that corresponding angles of two figures are congruent and that corresponding sides of two figures are proportional • explains whether a possible definition is valid by using precise definitions • explains whether or not a dilation presented on a coordinate plane as a set of ordered pairs, as a diagram, or as a narrative correctly verifies the properties of dilations • explains why all circles are similar • finds area and perimeter of shapes when coordinates are given as variables • finds the point on a line segment that partitions or finds the endpoint on a directed line segment when the coordinates contain variables • finds the volume of composite figures with no graphic or the dimension when the volume is changed • identifies a three-dimensional object generated by rotations, about a line of

	symmetry, of an open two-dimensional object or a closed two-dimensional object with empty space between the object and the line of symmetry • justifies steps of a proof given algebraic descriptions of triangles, using the definition of congruence in terms of rigid motions or that the triangles are congruent using ASA, SAS, SSS, or HL • proves conjectures about congruence or similarity in geometric figures • proves that rectangles and rhombuses are parallelograms • proves the Pythagorean theorem using similarity • proves the slope criteria for parallel and perpendicular lines • proves the unique relationships between the angles of a triangle or quadrilateral inscribed in a circle, and that the length of the arc intercepted by an angle is proportional to the radius, with the radian measure of the angle being the constant of proportionality • solves for sides of right triangles using trigonometric ratios and the Pythagorean theorem when side lengths and/or angles are given using variables • solves problems that use algebra, using at least three properties of central angles, diameters, radii, inscribed angles, circumscribed angles, chords, and tangents, for the midsegment of a triangle, concurrency of angle bisectors, or concurrency of perpendicular bisectors • writes equations of parallel or perpendicular lines when the coordinates are written using variables or the slope and y-intercept for the given line contains a variable



FLORIDA DEPARTMENT OF
EDUCATION
fldoe.org