	9.3.1.1	Determine the surface area and volume of pyramids, cones and spheres. Use measuring devices or formulas as appropriate.
x	9.3.1.2	Compose and decompose two- and three-dimensional figures; use decomposition to determine the perimeter, area, surface area and volume of various figures.
	9.3.1.3	Understand that quantities associated with physical measurements must be assigned units; apply such units correctly in expressions, equations and problem solutions that involve measurements; and convert between measurement systems.
	9.3.1.4	Understand and apply the fact that the effect of a scale factor k on length, area and volume is to multiply each by k, k^2 and k^3 , respectively.
	9.3.1.5	Make reasonable estimates and judgments about the accuracy of values resulting from calculations involving measurements.
	9.3.2.1	Understand the roles of axioms, definitions, undefined terms and theorems in logical arguments.
	9.3.2.2	Accurately interpret and use words and phrases such as "ifthen," "if and only if," "all," and "not." Recognize the logical relationships between an "ifthen" statement and its inverse, converse and contrapositive.
	9.3.2.3	3 Assess the validity of a logical argument and give counterexamples to disprove a statement.
	9.3.2.4	Construct logical arguments and write proofs of theorems and other results in geometry, including proofs by contradiction. Express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts or illustrations.
	9.3.2.5	Use technology tools to examine theorems, make and test conjectures, perform constructions and develop mathematical reasoning skills in multi-step problems. The tools may include compass and straight edge, dynamic geometry software, design software or Internet applets.
x	9.3.3.1	Know and apply properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve problems and logically justify results.
x	9.3.3.2	Know and apply properties of angles, including corresponding, exterior, interior, vertical, complementary and supplementary angles, to solve problems and logically justify results.
	9.3.3.3	Know and apply properties of equilateral, isosceles and scalene triangles

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		to solve problems and logically justify results.
	9.3.3.4	Apply the Pythagorean Theorem and its converse to solve problems and logically justify results.
x	9.3.3.5	Know and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems and logically justify results.
	9.3.3.6	Know and apply properties of congruent and similar figures to solve problems and logically justify results.
x	9.3.3.7	Use properties of polygons—including quadrilaterals and regular polygons—to define them, classify them, solve problems and logically justify results.
	9.3.3.8	Know and apply properties of a circle to solve problems and logically justify results.
	9.3.4.1	Understand how the properties of similar right triangles allow the trigonometric ratios to be defined, and determine the sine, cosine and tangent of an acute angle in a right triangle.
x	9.3.4.2	Apply the trigonometric ratios sine, cosine and tangent to solve problems, such as determining lengths and areas in right triangles and in figures that can be decomposed into right triangles. Know how to use calculators, tables or other technology to evaluate trigonometric ratios.
	9.3.4.3	Use calculators, tables or other technologies in connection with the trigonometric ratios to find angle measures in right triangles in various contexts.
х	9.3.4.4	Use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints and slopes of line segments.
	9.3.4.5	Know the equation for the graph of a circle with radius r and center (h, k), $(x - h) 2 + (y - k) 2 = r 2$, and justify this equation using the Pythagorean Theorem and properties of translations.
x	9.3.4.6	Use numeric, graphic and symbolic representations of transformations in two dimensions, such as reflections, translations, scale changes and rotations about the origin by multiples of 90°, to solve problems involving figures on a coordinate grid.
	9.3.4.7	Use algebra to solve geometric problems unrelated to coordinate geometry, such as solving for an unknown length in a figure involving similar triangles, or using the Pythagorean Theorem to obtain a quadratic equation for a length in a geometric figure.