

## Geometry CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
G.1	Number and Operation		
G.1.a	Use ratios, including pi, and proportions to solve problems.	Trigonometric Functions  Geometry	Right Triangle Trigonometry  Geometry of Circles
G.1.b	Classify real numbers as rational or irrational.		
G.1.c	Distinguish between exact and approximate values of irrational numbers.		
G.1.d	Approximate the location of an irrational number on a number line.		
G.1.e	Use appropriate methods to estimate answers and know if they are reasonable.		
G.1.f	Select a suitable method of computing from mental mathematics, paper and pencil, calculators, or computers.		
G.1.g	Simplify square roots containing radicands which are not perfect squares.		
G.1.h	Find exact and approximate values for square roots.		
G.1.1	Understand numbers, ways of representing numbers, relationships among numbers, and number system.		
G.1.1.1	Understand the meanings of real numbers.		

## Geometry CR

G.1.1.1.a	Define and explain the meaning of pi.	Perimeter and Area	Area and Circumference of a Circle
G.1.1.1.b	Recognize $\pi$ as an irrational number.		
G.1.1.1.c	Use 3.14 and/or $\frac{22}{7}$ as an approximation for pi.	Perimeter and Area	Area and Circumference of a Circle
G.1.2	Understand meanings of operations and how they relate to one another.		
0	No objectives at this course level.		
G.1.3	Compute fluently and make reasonable estimates.		
G.1.3.1	Judge the reasonableness of numerical computations and their results.		

## Geometry CR

G.1.3.1.a	Use appropriate methods to estimate answers and know if they are reasonable.		
G.1.3.1.b	Simplify expressions in terms of pi.	Perimeter and Area	Area and Circumference of a Circle
G.2	Concepts and Principles of Measurement		
G.2.a	Understand both metric and customary systems of measurement.		
G.2.b	Understand relationships among units and convert from one unit to another.		
G.2.c	Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume.	Perimeter and Area	All sections
G.2.d	Use appropriate methods and units to estimate measurements.		
G.2.e	Select and apply techniques and tools to accurately find length, area, volume, and angle measures to appropriate levels of precision.		

## Geometry CR

G.2.f	Select and use formulas to determine the circumference and area of circles, perimeters and areas of triangles and quadrilaterals.	Perimeter and Area	Area and Circumference of a Circle  Area and Perimeter of a Triangle  Area and Perimeter of a Quadrilateral
G.2.g	Develop strategies to determine the areas of irregular shapes.		
G.2.h	Solve problems involving scale factors, rates, ratios, and proportions.	Similarity	Ratios and Proportions
G.2.1	Understand measurable attributes of objects and the units, systems, and processes of measurement.		
G.2.1.1	Select appropriate units for problems involving measurement.		
G.2.1.1.a	Determine appropriate units for distance, angle measure, area, and volume.	Covered throughout course	Covered throughout course
G.2.1.1.b	Judge the effects of scale factors on length, area, and volume.	Similarity	Ratios and Proportions
G.2.2	Apply appropriate techniques, tools, and formulas to determine measurements.		

## Geometry CR

G.2.2.1	Understand and use formulas to calculate the perimeter, circumference, area, surface area, and volume of geometric figures.		
G.2.2.1.a	Determine the circumference, area, and area of a sector of a circle.		
G.2.2.1.b	Determine the perimeter and area of triangles, parallelograms, and other regular polygons.	Perimeter and Area	Perimeters and Areas of Triangles and Polygons
G.2.2.1.c	Determine the surface area and volume of prisms, cylinders, pyramids, cones, and spheres.	Perimeter and Area	Surface Area Volume
G.2.2.2	Understand and apply definitions, theorems, corollaries, and postulates to determine measurement.		
G.2.2.2.a	Apply the segment addition postulate to determine lengths of segments.		
G.2.2.2.b	Apply the angle addition postulate to determine the measures of angles.		
G.2.2.2.c	Determine the measures of angles in relation to adjacent, complementary, supplementary, vertical, linear pairs, and the special angle pairs formed by parallel lines and transversals.	Parallel Lines and Coordinate Plane	Lines and Points in a Plane

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G.2.2.2.d	Understand and apply the Pythagorean Theorem for problem solving.	Right Triangle and Trigonometry	Special Ratios in a Right Triangle
G.2.2.2.e	Determine the lengths and measures of arcs of a circle.	Circles	Arcs and Special Segments
G.2.2.2.f	Determine the lengths of segments and measure of angles formed by radii, chords, secants, and tangents of circles.	Circles	Arcs and Special Segments
G.2.2.2.g	Determine the measures of inscribed and central angles and their corresponding intercept arcs.	Circles	Special Angles in Circles
G.2.2.2.h	Determine the sums of the interior and exterior angles of a polygon.		
G.2.2.2.i	Determine the measure of each interior and exterior angle of a regular polygon.		
G.3	Concepts and Language of Algebra and Functions		
G.3.a	Define and interpret relations and functions numerically, graphically, and algebraically.		

## Geometry CR

G.3.b	Write equations and inequalities to represent data.		
G.3.c	Solve multi-step linear equations and inequalities.		
G.3.d	Add, subtract, and multiply polynomials.		
G.3.e	Divide a polynomial by a monomial.		
G.3.f	Factor polynomials including using greatest common factor.		
G.3.g	Write the equation or inequality in slope-intercept, point-slope, and standard form.		
G.3.h	Graph linear equations.		
G.3.i	Interpret the solution in light of the context.		

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G.3.j	Evaluate the equation or inequality for a given value.		
G.3.k	Create a table of values.		
G.3.l	Find and interpret the slope (rate of change) and intercepts in relation to the context.		
G.3.m	Solve linear systems of equations and inequalities involving two variables using multiple strategies.		
G.3.1	Understand patterns, relations, and functions.		
G.3.1.1	Describe the graphs of linear functions and discuss their appearances in terms of the basic concepts of intercepts and rate of change.		
G.3.1.1.a	Given the equation of a line, determine the slopes of the lines parallel and perpendicular to the given line.		
G.3.1.1.b	Given the equation of a line, graph the lines parallel and perpendicular to it through a given point.		

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G.3.2	Represent and analyze mathematical situations and structures using algebraic symbols.		
G.3.2.1	Represent linear patterns and relationships with an equation.		
G.3.2.1.a	Write equations of parallel and perpendicular lines.		
G.3.3	Use mathematical models to represent and understand quantitative relationships.		
0	No objectives at this course level.		
G.3.4	Analyze change in various contexts.		
0	No objectives at this course level.		
G.4	Concepts and Principles of Geometry		

## Geometry CR

G.4.a	Know and apply algebraic properties (commutative, associative, distributive, inverse, identity, multiplicative property of zero, properties of equality).		
G.4.b	Develop proportional relationships to solve problems.		
G.4.c	Describe and classify relationships among types of one-, two-, and three-dimensional geometric figures using their defining properties.		
G.4.d	Draw and measure various angles and shapes using appropriate tools.		
G.4.1	Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.		
G.4.1.1	Analyze properties and determine attributes of two- and three-dimensional objects.		
G.4.1.1.a	Apply the fundamental concepts, properties, and relationships among points, lines, rays, planes, and angles.	Connections from Algebra	Basic Elements of Geometry
G.4.1.1.b	Use accepted geometric notation for lines, planes, segments, rays, angles, similarity and congruence.	Connections from Algebra	Basic Elements of Geometry

## Geometry CR

G.4.1.1.c	Identify and determine relationships in adjacent, complementary, supplementary, and vertical angles, and in linear pairs.	Parallel Lines and Coordinate Plane	Lines and Points in a Plane
G.4.1.1.d	Identify and use the special angle pairs formed by parallel lines and a transversal.	Parallel Lines and Coordinate Plane	Lines and Points in a Plane
G.4.1.1.e	Identify the parts of a circle including radius, diameter, major/minor arcs, chords, secants and tangents.	Geometry	Geometry of Circles
G.4.1.1.f	Classify angles by their measure (acute, right, obtuse, straight).		
G.4.1.1.g	Classify triangles by side and angle (acute, right, obtuse, scalene, isosceles, equilateral, equiangular).		
G.4.1.1.h	Classify quadrilaterals by their attributes (parallelograms, trapezoids, rectangles, rhombi, squares).		
G.4.1.1.i	Classify polygons by sides and concavity.		
G.4.1.2	Explore congruence and similarity among classes of two dimensional objects and solve problems involving them.		

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G.4.1.2.a	Identify and apply congruency and similarity in two-dimensional figures.	Geometry	Geometry of a Triangle
G.4.1.2.b	Identify the scale factor between two similar figures and use it to find missing lengths.	Geometry	Geometry of a Triangle
G.4.1.2.c	Solve problems involving geometric mean.		
G.4.1.3	Establish the validity of geometric conjectures.		
G.4.1.3.a	Construct logical arguments, form conjectures, judge their validity, and give counterexamples to disprove statements.		
G.4.1.3.b	Informally or formally prove lines are parallel or perpendicular using special angle pair theorems.		
G.4.1.3.c	Informally or formally prove triangles are congruent using SSS, SAS, ASA and AAS.		
G.4.1.4	Apply trigonometric relationships to determine lengths and angle measures.	Trigonometric Functions	Right Triangle Trigonometry

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G.4.1.4.a	Identify and apply special right triangle relationships (30-60-90 and 45-45-90) to determine the lengths of the sides of a triangle.		
G.4.1.4.b	Relate similarity of right triangles to the trigonometric functions.	Trigonometric Functions	Right Triangle Trigonometry
G.4.1.4.c	Identify sine, cosine and tangent ratios in right triangles and use them to model contextual problems.	Trigonometric Functions	Right Triangle Trigonometry
G.4.2	Specify locations and describe spatial relationships using coordinate geometry and other representational systems.		
G.4.2.1	Use Cartesian coordinates to analyze geometric situations.		
G.4.2.1.a	Determine the midpoint of a segment in the coordinate plane.		
G.4.2.1.b	Given two endpoints of a segment in a coordinate plane, determine the length of the segment using the distance formula.		
G.4.3	Apply transformations and use symmetry to analyze mathematical situations.		

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G.4.3.1	Understand and represent translations, reflections, dilations, and rotations of objects in the plane.		
G.4.3.1.a	Use transformational geometry to rotate, translate, dilate, and reflect two-dimensional figures.		
G.4.4	Use visualization, spatial reasoning, and geometric models to solve problems.		
G.4.4.1	Draw and construct representations of two dimensional geometric objects using a variety of tools.		
G.4.4.1.a	Identify and construct medians, altitudes, angle bisectors, and perpendicular bisectors using straightedge and compass.		
G.5	Data Analysis, Probability, and Statistics		
G.5.a	No objectives at this course level.		