

H Geometry 9

Reporting Standards

H-GEO-9.1	Apply the foundations of geometry
H-GEO-9.2	Identify and apply angle relationships
H-GEO-9.3	Write and graph linear systems of parallel and perpendicular lines
H-GEO-9.4	Identify and apply properties of triangles
H-GEO-9.5	Identify and apply properties of circles
H-GEO-9.6	Prove congruence and similarity with polygons and quadrilaterals
H-GEO-9.7	Reflect, translate, rotate and dilate figures on the coordinate plane
H-GEO-9.8	Use spatial reasoning to calculate the surface area and volume of three-dimensional figures
H-GEO-9.9	Solve for sides and angles of triangles using trigonometric reasoning

Learning Targets

H-GEO-9.1: Apply the foundations of geometry.				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.1.1	I can identify the undefined terms in geometry	I can identify and accurately name the undefined terms in geometry	I can identify, name and model the undefined terms in geometry	I can measure and construct angles and segments
H-GEO-9.1.2	I can identify the midpoint of a line segment.	I can calculate the midpoint and/or distance of a line segment given two endpoints..	I can calculate the midpoint and distance of a line segment using the formula and Pythagorean Theorem given two endpoints or an endpoint and the midpoint.	I can apply my knowledge of midpoint and distance to real-life problems.
H-GEO-9.1.3	I can identify a model of the segment addition postulate or angle addition postulate.	I can solve for segments and angles using the segment and angle addition postulates when they are represented numerically .	I can solve for segments and angles using the segment and angle addition postulates given algebraic expressions.	I can use algebraic and geometric reasoning to solve for segments and angles on the coordinate plane.

H-GEO-9.2: Identify and apply angle relationships				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.2.1	I can identify and accurately name angles.	I can identify complementary, supplementary, vertical and adjacent angle pairs.	I can identify angle pairs formed by two parallel lines cut by a transversal and use the relationships to solve for missing angles measures.	I can identify angle relationships in three or more parallel lines cut by a transversal and solve for missing angle measures.
H-GEO-9.2.2	I can measure an angle using basic geometric tools.	I can solve for missing angle measures numerically.	I can use algebraic reasoning to solve for missing angle measures	I can construct adjacent angles given a specific relationship.

H-GEO-9.3: Write and graph systems of parallel and perpendicular lines				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.3.1	I can identify the slope and y-intercept of a linear equation.	I can write the linear equation of a line given the slope and y-intercept.	I can write the equations of a parallel or perpendicular system given an equation or graph.	I can create a system of parallel or perpendicular linear equations that produce a specific solution.
H-GEO-9.3.2	I can identify parallel lines given the slope of each linear equation.	I can identify parallel and perpendicular lines given the linear equation in standard form.	I can prove lines parallel using angle relationships.	I can construct parallel and perpendicular lines.

H-GEO-9.4: Identify and apply properties of triangles				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.4.1	I can identify a triangle.	I can classify triangles by sides or angles.	I can classify triangles by sides and angles.	I can classify a triangle on the coordinate plane using the distance formula.
H-GEO-9.4.2	I can prove triangles congruent when given the related statements and reasons.	I can prove triangles congruent when given the statements in a two-column proof.	I can utilize a two-column proof to prove triangle congruence using SAS, SSS, ASA, AAS and HL postulates.	I can extend a triangle proof to include sides and angles using corresponding parts of congruent triangles and congruent (CPCTC)..
H-GEO-9.4.3	I can solve for a missing angle in a triangle using the Triangle Sum Theorem.	I can solve for missing sides or angles using the properties of triangles.	I can solve for missing angles and sides using the properties of triangles.	I can construct the isosceles and equilateral triangle proofs.

H-GEO-9.5: Identify and apply properties of circles.				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.5.1	I can identify and accurately name a central angle.	I can solve for the measure of a central angle.	I can solve for missing central angle and arc measures using the properties of circles.	I can solve for an arc length in radians and degrees using the properties of a circle.
H-GEO-9.5.2	I can identify a chord, secant and tangent line/segment given a circle.	I can solve for the length of a segment in a circle when it is formed by two intersecting chords.	I can solve for the length of a segment formed by chords, secants and tangent lines.	I can utilize the properties of inscribed quadrilaterals to solve for segments in a circle.
H-GEO-9.5.3	I can identify the radius and center of a circle, given a circle on a coordinate plane.	I can write the equation of a circle given the radius and the center.	I can graph a circle on the coordinate plane, given the equation of the circle in standard form.	I can convert between general and standard form equations of a circle and graph the circle on the coordinate plane.

H-GEO-9.6: Prove congruence with polygons and quadrilaterals				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.6.1	I can determine whether or not a figure is a regular or irregular polygon.	I can solve for missing interior angles of a polygon.	I can calculate the measure of an interior or exterior angle of a regular polygon.	I can use the sum of the interior angles of a polygon to prove the measure of a missing angle.
H-GEO-9.6.2	I can identify a quadrilateral when all congruence markings are included on a diagram.	I can solve for missing sides and angles in a quadrilateral when given the classification.	I can classify a quadrilateral as a kite, parallelogram or trapezoid using the properties of quadrilaterals	I can prove a quadrilateral is a kite, parallelogram or trapezoid on the coordinate plane.

H-GEO-9.7: Reflect, translate, rotate and dilate figures on the coordinate plane				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.7.1	I can identify transformations as translations, reflections or rotations.	I can write the rule of translation given a translation on the coordinate plane.	I can translate a figure on the coordinate plane.	I can use vector notation to translate a figure on the coordinate plane.
H-GEO-9.7.2	I can identify transformations as translations, reflections or rotations.	I can write the rule of reflection given a reflection on the coordinate plane.	I can reflect a figure over the x or y axis on the coordinate plane.	I can reflect a figure given a specific linear function on the coordinate plane.
H-GEO-9.7.3	I can identify transformations as	I can write the rule of rotation given a	I can rotate a figure, about the origin, on	I can rotate a figure, about a fixed point, on

	translations, reflections or rotations.	rotation on the coordinate plane.	the coordinate plane.	the coordinate plane.
H-GEO-9.7.4	I can determine whether a dilation is an enlargement or reduction given the preimage and image.	I can determine the scale factor of a dilation on the coordinate plane.	I can dilate a figure on the coordinate plane, about the origin.	I can use a fixed point as a center of dilation to dilate a figure on the coordinate plane.

H-GEO-9.8: Use spatial reasoning to calculate the surface area and volume of three dimensional figures				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.8.1	I can identify a plane figure and determine the difference between the area and perimeter.	I can calculate the area and perimeter of a plane figure.	I can calculate the area and perimeter of a composite and/or shaded figure.	I can calculate the area and perimeter of a regular polygon using the apothem.
H-GEO-9.8.2	I can classify a three-dimensional shape as a prism, pyramid, cylinder, cone or sphere.	I can calculate the surface area and volume of three-dimensional shapes.	I can calculate the surface area and volume of three-dimensional shapes and apply the skills to solve real-world applications.	I can use scale-factors of similar solids to calculate the surface area and volume of three-dimensional shapes.

H-GEO-9.9: Solve for sides and angles using trigonometric reasoning				
	Limited	Developing	Proficient	Exemplary
H-GEO-9.9.1	I can identify the hypotenuse and legs of a right triangle.	I can solve for missing sides of a right triangle using the Pythagorean Theorem.	I can solve for missing sides of right triangles using the Pythagorean Theorem and the properties of special right triangles.	I can prove similarity in right triangles using the geometric mean (Altitude Theorem).
H-GEO-9.9.2	I can identify the opposite, adjacent and hypotenuse of a right triangle when given a reference angle.	I can solve for missing triangle measures using the trigonometric ratios.	I can use the law of sines and cosines to solve for missing measures of a triangle.	I can apply the law of sines and cosines to solve real-world problems.