Geometry Potential Gaps in Student Pre-Requisite Knowledge

This document indicates pre-requisite knowledge gaps that may exist for Geometry students based on what the Grade 7, Grade 8, and Algebra I common core math standards expect. Column four indicates the Algebra II common core standard which could be affected if the stated gap exists. Other gaps may exist for other reasons; therefore, it important that teachers diagnose their students' needs as part of the planning process.

Domain	Prior Grade CCSS	Wording of Algebra I CCSS Expectation	Geometry CCSS
High School Number (N)	**HSN-RN.B.3**	Explain why the 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.	**HSG-SRT.C.8**
High School Algebra (A)	**HSA-REI.B.4**	Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x – p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	**HSG-GPE.A.1**
Grade 7 Geometry	**7.G.A.3**	Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**HSG-GMD.B.4**
	7.G.B.4	Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	**HSG-GMD.A.1** **HSG-MG.A.2**
	7.G.B.6	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	**HSG-MG.A.1** **HSG-MG.A.3**

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Grade 8 Geometry	**8.G.A.2**	Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.	**HSG-CO.A.3** **HSG-CO.B.6** **HSG-CO.B.7** **HSG-CO.B.8**
	8.G.A.4	Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.	**HSG-SRT.A.2** **HSG-SRT.A.3**
	8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	**HSG-CO.C.9** **HSG-CO.C.10**
	8.G.B.8	Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	**HSG-GPE.B.7**
	8.G.C.9	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	**HSG-GMD.A.3**