

G Geometry

- **8.G.A Understand congruence and similarity using physical models, transparencies, or geometry software.**
 - **8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations:**
 - **8.G.A.1.a Lines are transformed to lines, and line segments to line segments of the same length.**
 - [Identify reflections, rotations, and translations \(8-P.4\)](#)
 - [Translations: graph the image \(8-P.6\)](#)
 - [Reflections over the x- and y-axes: graph the image \(8-P.9\)](#)
 - [Reflections: graph the image \(8-P.11\)](#)
 - [Rotations: graph the image \(8-P.13\)](#)
 - **8.G.A.1.b Angles are transformed to angles of the same measure.**
 - [Identify reflections, rotations, and translations \(8-P.4\)](#)
 - [Translations: graph the image \(8-P.6\)](#)
 - [Reflections over the x- and y-axes: graph the image \(8-P.9\)](#)
 - [Reflections: graph the image \(8-P.11\)](#)
 - [Rotations: graph the image \(8-P.13\)](#)
 - **8.G.A.1.c Parallel lines are transformed to parallel lines.**
 - [Identify reflections, rotations, and translations \(8-P.4\)](#)
 - [Translations: graph the image \(8-P.6\)](#)
 - [Reflections over the x- and y-axes: graph the image \(8-P.9\)](#)
 - [Reflections: graph the image \(8-P.11\)](#)
 - [Rotations: graph the image \(8-P.13\)](#)
 - **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.**
 - [Describe a sequence of transformations \(8-P.5\)](#)
 - [Congruence statements and corresponding parts \(8-P.16\)](#)
 - [Side lengths and angle measures of congruent figures \(8-P.17\)](#)
 - [Similar and congruent figures \(8-Q.1\)](#)
 - **8.G.A.3 Describe the effects of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.**
 - [Translations: find the coordinates \(8-P.7\)](#)
 - [Reflections over the x- and y-axes: find the coordinates \(8-P.10\)](#)
 - [Reflections: find the coordinates \(8-P.12\)](#)
 - [Rotations: find the coordinates \(8-P.14\)](#)
 - [Sequences of congruence transformations: graph the image \(8-P.15\)](#)
 - [Dilations: graph the image \(8-Q.2\)](#)
 - [Dilations: find the coordinates \(8-Q.3\)](#)
 - **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.**
- [Similar and congruent figures \(8-Q.1\)](#)
 - [Side lengths and angle measures of similar figures \(8-Q.7\)](#)
 - **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.**
 - [Find missing angles in triangles \(8-O.7\)](#)
 - [Find missing angles in triangles using ratios \(8-O.8\)](#)
 - [Triangle Angle-Sum Theorem \(8-O.9\)](#)
 - [Exterior Angle Theorem \(8-O.12\)](#)
 - [Identify alternate interior and alternate exterior angles \(8-O.16\)](#)
 - [Transversals of parallel lines: name angle pairs \(8-O.17\)](#)
 - [Transversals of parallel lines: find angle measures \(8-O.18\)](#)
 - **Checkpoint opportunity**
 - [Checkpoint: Triangles and transversals \(8-O.\)](#)
 - [Checkpoint: Congruence transformations \(8-P.\)](#)
 - [Checkpoint: Similarity transformations \(8-Q.\)](#)
 - [Checkpoint: Transformations on the coordinate plane \(8-Q.\)](#)
 - **8.G.B Understand and apply the Pythagorean Theorem.**
 - **8.G.B.6 Understand and apply the Pythagorean Theorem.**
 - **8.G.B.6.a Understand the relationship among the sides of a right triangle.**
 - [Pythagorean theorem: find the length of the hypotenuse \(8-R.1\)](#)
 - **8.G.B.6.b Analyze and justify the Pythagorean Theorem and its converse using pictures, diagrams, narratives, or models.**
 - [Converse of the Pythagorean theorem: is it a right triangle? \(8-R.6\)](#)
 - **8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.**
 - [Pythagorean theorem: find the length of the hypotenuse \(8-R.1\)](#)
 - [Pythagorean theorem: find the missing leg length \(8-R.2\)](#)
 - [Pythagorean theorem: find the missing leg or hypotenuse length \(8-R.3\)](#)
 - [Pythagorean theorem: find the perimeter \(8-R.4\)](#)
 - [Pythagorean theorem: word problems \(8-R.5\)](#)
 - **8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.**
 - [Find the distance between two points \(8-N.4\)](#)
 - **Checkpoint opportunity**
 - [Checkpoint: Pythagorean theorem and its converse \(8-R.\)](#)
 - [Checkpoint: Applications of the Pythagorean theorem \(8-R.\)](#)
 - **8.G.C Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
 - **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.**
 - [Volume of cylinders \(8-T.10\)](#)
 - [Volume of cones \(8-T.11\)](#)
 - [Volume of spheres \(8-T.14\)](#)

- **Checkpoint opportunity**
 - [Checkpoint: Volume \(8-T.\)](#)