

Beaverton School District

High School - Geometry

It is essential that the high school mathematics content standards be addressed in contexts that promote problem solving, reasoning, communication, making connections, and designing and analyzing representations. Students will also be expected to reflect on their solution(s). Every student should understand and apply all mathematical concepts and skills from previous grade levels to these standards.

H.1G Geometry: Apply properties of two-dimensional figures.

- H.1G.1 Identify, apply, and analyze angle relationships among two or more lines and a transversal to determine if lines are parallel, perpendicular, or neither.
- H.1G.2 Apply theorems, properties, and definitions to determine, identify, and justify congruency or similarity of triangles and to classify quadrilaterals.
- H.1G.3 Apply theorems of corresponding parts of congruent and similar figures to determine missing sides and angles of polygons.
- H.1G.4 Determine the missing dimensions, angles, or area of regular polygons, quadrilaterals, triangles, circles, composite shapes, and shaded regions.
- H.1G.5 Determine if three given lengths form a triangle. If the given lengths form a triangle, classify it as acute, right, or obtuse.
- H.1G.6 Use trigonometric ratios (sine, cosine and tangent) and the Pythagorean Theorem to solve for unknown lengths in right triangles.
- H.1G.7 In problems involving circles, apply theorems and properties of chords, tangents, and angles; and theorems and formulas of arcs and sectors.

H.2G Geometry: Apply properties of three-dimensional solids.

- H.2G.1 Identify, classify, model, sketch, and label representations of three-dimensional objects from nets and from different perspectives.
- H.2G.2 Identify and apply formulas for surface area and volume of spheres; right solids, including rectangular prisms and pyramids; cones; and cylinders; and compositions thereof. Solve related context-based problems.
- H.2G.3 Identify and apply formulas to solve for the missing dimensions of spheres and right solids, including rectangular prisms and pyramids, cones, and cylinders, both numerically and symbolically.

H.3G Geometry: Transform and analyze figures.

- H.3G.1 Recognize and identify line and rotational symmetry of two-dimensional figures.
- H.3G.2 Identify and perform single and composite transformations of geometric figures in a plane, including translations, origin-centered dilations, reflections across either axis or $y = \pm x$, and rotations about the origin in multiples of 90° .
- H.3G.3 Apply a scale factor to determine similar two- and three-dimensional figures, are similar. Compare and compute their respective areas and volumes of similar figures.
- H.3G.4 Apply slope, distance, and midpoint formulas to solve problems in a coordinate plane.