

# Geometry

**Course Description:** A foundation in geometry is laid through the introduction of undefined terms, definitions, and incidence theorems. Subsets and measurements are covered. Logic is introduced as the basis for proof. Other topics covered include area, circles, space, volume, transformations, symmetry, and similarity. The course concludes with an introduction into trigonometry.

**Textbook:** *Geometry for Christian Schools, 3<sup>rd</sup> edition* (BJUP)

## **Goal 1: To comprehend incidence Geometry.**

- \_\_\_\_\_ 1.1 The student will use correct set notation to express sets.
- \_\_\_\_\_ 1.2 The student will use correct set notation to express elements.
- \_\_\_\_\_ 1.3 The student will use correct set notation to express subsets.
- \_\_\_\_\_ 1.4 The student will identify equivalent sets.
- \_\_\_\_\_ 1.5 The student will identify equal sets.
- \_\_\_\_\_ 1.6 The student will perform the union of sets.
- \_\_\_\_\_ 1.7 The student will perform the intersection of sets.
- \_\_\_\_\_ 1.8 The student will find the complement of a set.
- \_\_\_\_\_ 1.9 The student will identify the universal set.
- \_\_\_\_\_ 1.10 The student will use Venn diagrams to illustrate set operations.
- \_\_\_\_\_ 1.11 The student will recognize the undefined terms in geometry.
- \_\_\_\_\_ 1.12 The student will define collinear points.
- \_\_\_\_\_ 1.13 The student will define noncollinear points.
- \_\_\_\_\_ 1.14 The student will define concurrent lines.
- \_\_\_\_\_ 1.15 The student will define coplanar points.
- \_\_\_\_\_ 1.16 The student will define coplanar lines.
- \_\_\_\_\_ 1.17 The student will define parallel lines.
- \_\_\_\_\_ 1.18 The student will define skew lines.
- \_\_\_\_\_ 1.19 The student will define parallel planes.
- \_\_\_\_\_ 1.20 The student will identify the expansion postulate.
- \_\_\_\_\_ 1.21 The student will identify the line postulate.
- \_\_\_\_\_ 1.22 The student will identify the plane postulate.
- \_\_\_\_\_ 1.23 The student will identify the flat plane postulate.
- \_\_\_\_\_ 1.24 The student will identify the plane intersection postulate.
- \_\_\_\_\_ 1.25 The student will identify the incidence theorems.
- \_\_\_\_\_ 1.26 The student will use the incidence theorems.

## **Goal 2: To understand subsets of lines, planes, and space.**

- \_\_\_\_\_ 2.1 The student will define a half-line.
- \_\_\_\_\_ 2.2 The student will use correct notation for a half-line.
- \_\_\_\_\_ 2.3 The student will define a ray.
- \_\_\_\_\_ 2.4 The student will use correct notation for a ray.
- \_\_\_\_\_ 2.5 The student will define a segment.

- \_\_\_\_\_ 2.6 The student will use correct notation for a segment.
- \_\_\_\_\_ 2.7 The student will use correct notation for a line.
- \_\_\_\_\_ 2.8 The student will state the line separation postulate.
- \_\_\_\_\_ 2.9 The student will apply the line separation postulate.
- \_\_\_\_\_ 2.10 The student will perform set operations with the subsets of a line.
- \_\_\_\_\_ 2.11 The student will define betweenness of points.
- \_\_\_\_\_ 2.12 The student will use correct notation for betweenness of points.
- \_\_\_\_\_ 2.13 The student will identify if a given point is between two other points.
- \_\_\_\_\_ 2.14 The student will define opposite rays.
- \_\_\_\_\_ 2.15 The student will identify opposite rays.
- \_\_\_\_\_ 2.16 The student will state the plane separation postulate.
- \_\_\_\_\_ 2.17 The student will apply the plane separation postulate.
- \_\_\_\_\_ 2.18 The student will define a half-plane.
- \_\_\_\_\_ 2.19 The student will identify the edge of a half-plane.
- \_\_\_\_\_ 2.20 The student will identify opposite half-planes.
- \_\_\_\_\_ 2.21 The student will use correct notation to name an angle.
- \_\_\_\_\_ 2.22 The student will identify the side of an angle.
- \_\_\_\_\_ 2.23 The student will identify the vertex of an angle.
- \_\_\_\_\_ 2.24 The student will identify points in the interior of an angle.
- \_\_\_\_\_ 2.25 The student will identify points in the exterior of an angle.
- \_\_\_\_\_ 2.26 The student will classify curves.
- \_\_\_\_\_ 2.27 The student will apply the Jordan Curve theorem.
- \_\_\_\_\_ 2.28 The student will use correct notation to name a circle.
- \_\_\_\_\_ 2.29 The student will identify a radius of a circle.
- \_\_\_\_\_ 2.30 The student will identify a diameter of a circle.
- \_\_\_\_\_ 2.31 The student will identify a chord of a circle.
- \_\_\_\_\_ 2.32 The student will identify an arc of a circle.
- \_\_\_\_\_ 2.33 The student will identify points in the interior of a circle.
- \_\_\_\_\_ 2.34 The student will identify points in the exterior of a circle.
- \_\_\_\_\_ 2.35 The student will define a region.
- \_\_\_\_\_ 2.36 The student will identify a convex set.
- \_\_\_\_\_ 2.37 The student will identify a concave set.
- \_\_\_\_\_ 2.38 The student will identify a side of a polygon.
- \_\_\_\_\_ 2.39 The student will identify an angle of a polygon.
- \_\_\_\_\_ 2.40 The student will identify a vertex of a polygon.
- \_\_\_\_\_ 2.41 The student will classify polygons according to the number of sides.
- \_\_\_\_\_ 2.42 The student will identify an equilateral polygon.
- \_\_\_\_\_ 2.43 The student will identify an equiangular polygon.
- \_\_\_\_\_ 2.44 The student will identify a regular polygon.
- \_\_\_\_\_ 2.45 The student will identify a diagonal of a polygon.
- \_\_\_\_\_ 2.46 The student will identify a surface.
- \_\_\_\_\_ 2.47 The student will identify a sphere.
- \_\_\_\_\_ 2.48 The student will identify a cone.
- \_\_\_\_\_ 2.49 The student will identify a cylinder.
- \_\_\_\_\_ 2.50 The student will identify a prism.
- \_\_\_\_\_ 2.51 The student will identify a pyramid.

- \_\_\_\_\_ 2.52 The student will identify a right figure.
- \_\_\_\_\_ 2.53 The student will identify an oblique figure.
- \_\_\_\_\_ 2.54 The student will identify names of the simple polyhedra

**Goal 3: To apply segments and measurement.**

- \_\_\_\_\_ 3.1 The student will give examples of the properties of real numbers.
- \_\_\_\_\_ 3.2 The student will solve absolute value equations.
- \_\_\_\_\_ 3.3 The student will compute absolute value expressions.
- \_\_\_\_\_ 3.4 The student will define an equivalence relation.
- \_\_\_\_\_ 3.5 The student will use coordinates to determine distances.
- \_\_\_\_\_ 3.6 The student will identify the coordinate of a point on a number line.
- \_\_\_\_\_ 3.7 The student will define *between* using distance.
- \_\_\_\_\_ 3.8 The student will find the midpoint of a segment.
- \_\_\_\_\_ 3.9 The student will identify bisectors of segments.
- \_\_\_\_\_ 3.10 The student will identify congruent segments.
- \_\_\_\_\_ 3.11 The student will find the perimeter of polygons.
- \_\_\_\_\_ 3.12 The student will find the circumference of a circle.
- \_\_\_\_\_ 3.13 The student will identify inscribed polygons.
- \_\_\_\_\_ 3.14 The student will identify circumscribed polygons.
- \_\_\_\_\_ 3.15 The student will identify tangents of circles.

**Goal 4: To apply angles and measurement.**

- \_\_\_\_\_ 4.1 The student will graph inequalities.
- \_\_\_\_\_ 4.2 The student will use a protractor to measure angles.
- \_\_\_\_\_ 4.3 The student will use a protractor to draw angles.
- \_\_\_\_\_ 4.4 The student will classify angles by their angle measure.
- \_\_\_\_\_ 4.5 The student will identify congruent angles.
- \_\_\_\_\_ 4.6 The student will define adjacent angles.
- \_\_\_\_\_ 4.7 The student will identify the Angle Addition Postulate.
- \_\_\_\_\_ 4.8 The student will apply the Angle Addition Postulate.
- \_\_\_\_\_ 4.9 The student will define angle bisectors.
- \_\_\_\_\_ 4.10 The student will apply angle bisectors.
- \_\_\_\_\_ 4.11 The student will define perpendicular lines.
- \_\_\_\_\_ 4.12 The student will apply perpendicular lines.
- \_\_\_\_\_ 4.13 The student will define a linear pair of angles.
- \_\_\_\_\_ 4.14 The student will define vertical angles.
- \_\_\_\_\_ 4.15 The student will define complementary angles.
- \_\_\_\_\_ 4.16 The student will define supplementary angles.
- \_\_\_\_\_ 4.17 The student will apply a linear pair of angles.
- \_\_\_\_\_ 4.18 The student will apply vertical angles.
- \_\_\_\_\_ 4.19 The student will apply complementary angles.
- \_\_\_\_\_ 4.20 The student will apply supplementary angles.
- \_\_\_\_\_ 4.21 The student will prove theorems related to angles.
- \_\_\_\_\_ 4.22 The student will classify triangles by type of angle.

- \_\_\_\_\_ 4.23 The student will classify triangles by congruent sides.
- \_\_\_\_\_ 4.24 The student will classify quadrilaterals.

**Goal 5: To understand proofs.**

- \_\_\_\_\_ 5.1 The student will reason through logic problems.
- \_\_\_\_\_ 5.2 The student will identify statements.
- \_\_\_\_\_ 5.3 The student will classify statements as true or false.
- \_\_\_\_\_ 5.4 The student will apply quantifiers to statements.
- \_\_\_\_\_ 5.5 The student will form negations of statements.
- \_\_\_\_\_ 5.6 The student will identify statements as a disjunction or conjunction.
- \_\_\_\_\_ 5.7 The student will determine whether disjunctions are true or false.
- \_\_\_\_\_ 5.8 The student will determine whether conjunctions are true or false.
- \_\_\_\_\_ 5.9 The student will identify the truth values of connectives using truth tables.
- \_\_\_\_\_ 5.10 The student will write conditional statements.
- \_\_\_\_\_ 5.11 The student will determine whether conditional statements are true or false.
- \_\_\_\_\_ 5.12 The student will write biconditional statements as two conditional statements.
- \_\_\_\_\_ 5.13 The student will write conditional statements as a disjunction.
- \_\_\_\_\_ 5.14 The student will write the inverse of a conditional statement.
- \_\_\_\_\_ 5.15 The student will write the converse of a conditional statement.
- \_\_\_\_\_ 5.16 The student will write the contrapositive of a conditional statement.
- \_\_\_\_\_ 5.17 The student will classify arguments as deductive or inductive.
- \_\_\_\_\_ 5.18 The student will identify types of inductive arguments.
- \_\_\_\_\_ 5.19 The student will evaluate deductive arguments as valid or invalid.
- \_\_\_\_\_ 5.20 The student will evaluate deductive arguments as sound or unsound.
- \_\_\_\_\_ 5.21 The student will identify types of deductive proofs.
- \_\_\_\_\_ 5.22 The student will recognize the fallacies of deductive reasoning.
- \_\_\_\_\_ 5.23 The student will recognize the fallacies of inductive reasoning.

**Goal 6: To understand congruence.**

- \_\_\_\_\_ 6.1 The student will prove theorems involving line segments.
- \_\_\_\_\_ 6.2 The student will identify theorems involving line segments.
- \_\_\_\_\_ 6.3 The student will prove theorems involving congruent angles.
- \_\_\_\_\_ 6.4 The student will identify theorems involving congruent angles.
- \_\_\_\_\_ 6.5 The student will define congruent polygons.
- \_\_\_\_\_ 6.6 The student will define congruent circles.
- \_\_\_\_\_ 6.7 The student will use correct notation for congruent polygons.
- \_\_\_\_\_ 6.8 The student will identify transversals.
- \_\_\_\_\_ 6.9 The student will name the various pairs of angles formed when a transversal intersects two lines.
- \_\_\_\_\_ 6.10 The student will state the Parallel Postulate.
- \_\_\_\_\_ 6.11 The student will apply the Parallel Postulate.

- \_\_\_\_\_ 6.12 The student will identify the congruent pairs of angles formed by transversals through parallel lines.
- \_\_\_\_\_ 6.13 The student will prove theorems involving the angles of triangles.
- \_\_\_\_\_ 6.14 The student will find the measures of the angles of a polygon.
- \_\_\_\_\_ 6.15 The student will identify the Side-Angle-Side postulate for congruent triangles.
- \_\_\_\_\_ 6.16 The student will identify the Angle-Side-Angle postulate for congruent triangles.
- \_\_\_\_\_ 6.17 The student will prove triangle congruence using the congruence postulates.
- \_\_\_\_\_ 6.18 The student will prove triangle congruence using the congruence theorems.

**Goal 7: To comprehend triangles and quadrilaterals.**

- \_\_\_\_\_ 7.1 The student will prove special congruence theorems for right triangles.
- \_\_\_\_\_ 7.2 The student will use the right triangle congruence theorems to prove right triangles congruent.
- \_\_\_\_\_ 7.3 The student will identify the properties of perpendicular bisectors.
- \_\_\_\_\_ 7.4 The student will prove the properties of perpendicular bisectors.
- \_\_\_\_\_ 7.5 The student will define an altitude of a triangle.
- \_\_\_\_\_ 7.6 The student will define a median of a triangle.
- \_\_\_\_\_ 7.7 The student will identify the circumcenter of a triangle.
- \_\_\_\_\_ 7.8 The student will identify the incenter of a triangle.
- \_\_\_\_\_ 7.9 The student will identify the orthocenter of a triangle.
- \_\_\_\_\_ 7.10 The student will identify the centroid of a triangle.
- \_\_\_\_\_ 7.11 The student will prove the relationship between an exterior angle and the two remote interior angles.
- \_\_\_\_\_ 7.12 The student will apply the relationship between an exterior angle and the two remote interior angles by finding missing angle measures.
- \_\_\_\_\_ 7.13 The student will prove theorems involving the Longer Side Inequality.
- \_\_\_\_\_ 7.14 The student will prove theorems involving the Hinge Theorem.
- \_\_\_\_\_ 7.15 The student will compare sides of a triangle using the Longer Side Inequality.
- \_\_\_\_\_ 7.16 The student will compare sides of a triangle using the Hinge Theorem.
- \_\_\_\_\_ 7.17 The student will compare angles of a triangle using the Longer Side Inequality.
- \_\_\_\_\_ 7.18 The student will compare angles of a triangle using the Hinge Theorem.
- \_\_\_\_\_ 7.19 The student will prove the triangle inequality.
- \_\_\_\_\_ 7.20 The student will compare sides of triangles using the triangle inequality.
- \_\_\_\_\_ 7.21 The student will prove theorems involving quadrilaterals.
- \_\_\_\_\_ 7.22 The student will use properties of quadrilaterals to find missing angle measures.

**Goal 8: To apply principles of area.**

- \_\_\_\_\_ 8.1 The student will find the area of rectangular regions.
- \_\_\_\_\_ 8.2 The student will apply that Area Addition postulate to regions reducible to rectangular regions.
- \_\_\_\_\_ 8.3 The student will find the area of triangles.
- \_\_\_\_\_ 8.4 The student will find the area of squares.
- \_\_\_\_\_ 8.5 The student will find the area of trapezoids.
- \_\_\_\_\_ 8.6 The student will find the area of parallelograms.
- \_\_\_\_\_ 8.7 The student will apply the Pythagorean theorem to right triangles.
- \_\_\_\_\_ 8.8 The student will find the area of an equilateral triangle.
- \_\_\_\_\_ 8.9 The student will find the area of regular polygons.
- \_\_\_\_\_ 8.10 The student will find relationships between the apothem, altitude, and side of an equilateral triangle.
- \_\_\_\_\_ 8.11 The student will find the area of circles.
- \_\_\_\_\_ 8.12 The student will calculate the lateral surface area of prisms.
- \_\_\_\_\_ 8.13 The student will calculate the lateral surface area of cylinders.
- \_\_\_\_\_ 8.14 The student will calculate the surface area of prisms.
- \_\_\_\_\_ 8.15 The student will calculate the surface area of cylinders.
- \_\_\_\_\_ 8.16 The student will calculate the lateral surface area of pyramids.
- \_\_\_\_\_ 8.17 The student will calculate the lateral surface area of cones.
- \_\_\_\_\_ 8.18 The student will calculate the surface area of pyramids.
- \_\_\_\_\_ 8.19 The student will calculate the surface area of cones.
- \_\_\_\_\_ 8.20 The student will calculate the surface area of regular polyhedra.
- \_\_\_\_\_ 8.21 The student will calculate the surface area of regular spheres.

**Goal 9: To understand circles.**

- \_\_\_\_\_ 9.1 The student will identify relationships between congruent circles.
- \_\_\_\_\_ 9.2 The student will identify relationships between chords of circles.
- \_\_\_\_\_ 9.3 The student will prove theorems for congruent circles.
- \_\_\_\_\_ 9.4 The student will prove theorems for chords of circles.
- \_\_\_\_\_ 9.5 The student will identify tangent lines.
- \_\_\_\_\_ 9.6 The student will identify secant lines.
- \_\_\_\_\_ 9.7 The student will classify common tangents.
- \_\_\_\_\_ 9.8 The student will classify common tangent circles.
- \_\_\_\_\_ 9.9 The student will prove theorems about tangents.
- \_\_\_\_\_ 9.10 The student will prove theorems about secants.
- \_\_\_\_\_ 9.11 The student will identify relationships between arcs of circles, central angles, and inscribed angles.
- \_\_\_\_\_ 9.12 The student will identify major arcs.
- \_\_\_\_\_ 9.13 The student will identify minor arcs.
- \_\_\_\_\_ 9.14 The student will identify semicircles.
- \_\_\_\_\_ 9.15 The student will prove theorems relating the measures of arcs, central angles, and chords.
- \_\_\_\_\_ 9.16 The student will find the measure of inscribed angles.
- \_\_\_\_\_ 9.17 The student will find the measure of intercepted arcs.

- \_\_\_\_\_ 9.18 The student will prove theorems relating inscribed angles to the measure of their intercepted arcs.
- \_\_\_\_\_ 9.19 The student will find the measures of angles formed by intersecting lines based on the measures of the intercepted arcs.
- \_\_\_\_\_ 9.20 The student will prove relationships between angles formed by intersecting lines based on the measures of the intercepted arcs.
- \_\_\_\_\_ 9.21 The student will apply the formula for finding arc length.
- \_\_\_\_\_ 9.22 The student will apply the formula for the area of a sector.
- \_\_\_\_\_ 9.23 The student will apply the formula for the area of a sector.
- \_\_\_\_\_ 9.24 The student will apply the formula for the area of segments.
- \_\_\_\_\_ 9.25 The student will apply the formula for the perimeter of a sector.

**Goal 10: To comprehend space.**

- \_\_\_\_\_ 10.1 The student will draw figures in perspective.
- \_\_\_\_\_ 10.2 The student will sketch three-dimensional figures.
- \_\_\_\_\_ 10.3 The student will apply the Space Separation Postulate.
- \_\_\_\_\_ 10.4 The student will identify the parts of a dihedral angle.
- \_\_\_\_\_ 10.5 The student will identify perpendiculars in space.
- \_\_\_\_\_ 10.6 The student will prove theorems involving perpendiculars in space.
- \_\_\_\_\_ 10.7 The student will identify parallels in space.
- \_\_\_\_\_ 10.8 The student will prove theorems involving parallels in space.
- \_\_\_\_\_ 10.9 The student will classify hexahedra.
- \_\_\_\_\_ 10.10 The student will identify terms related to hexahedra.
- \_\_\_\_\_ 10.11 The student will prove theorems for parallelepipeds.
- \_\_\_\_\_ 10.12 The student will apply Euler's formula.
- \_\_\_\_\_ 10.13 The student will identify terms related to spheres.
- \_\_\_\_\_ 10.14 The student will prove theorems about spheres.
- \_\_\_\_\_ 10.15 The student will apply the formula for arc length on a sphere.
- \_\_\_\_\_ 10.16 The student will identify cities and countries given their latitude and longitude.
- \_\_\_\_\_ 10.17 The student will identify the latitude and longitude of cities and countries.
- \_\_\_\_\_ 10.18 The student will identify the concepts of spherical geometry as an example of a non-Euclidean geometry.

**Goal 11: To know volume.**

- \_\_\_\_\_ 11.1 The student will apply the Volume Addition Postulate to solids.
- \_\_\_\_\_ 11.2 The student will find the volume of prisms.
- \_\_\_\_\_ 11.3 The student will find the height of prisms.
- \_\_\_\_\_ 11.4 The student will find the area of the base of prisms.
- \_\_\_\_\_ 11.5 The student will find the volume of cylinders.
- \_\_\_\_\_ 11.6 The student will find the height of cylinders.
- \_\_\_\_\_ 11.7 The student will find the area of the base of cylinders.
- \_\_\_\_\_ 11.8 The student will find the volume of cones.
- \_\_\_\_\_ 11.9 The student will find the height of cones.

- \_\_\_\_\_ 11.10 The student will find the area of the base of cones.
- \_\_\_\_\_ 11.11 The student will find the volume of pyramids.
- \_\_\_\_\_ 11.12 The student will find the height of pyramids.
- \_\_\_\_\_ 11.13 The student will find the area of the base of pyramids.
- \_\_\_\_\_ 11.14 The student will find the volume of spheres.
- \_\_\_\_\_ 11.15 The student will find the radius of spheres.

**Goal 12: To understand transformations and symmetry.**

- \_\_\_\_\_ 12.1 The student will illustrate geometric transformations.
- \_\_\_\_\_ 12.2 The student will identify geometric transformations.
- \_\_\_\_\_ 12.3 The student will perform reflections.
- \_\_\_\_\_ 12.4 The student will identify the line of reflection.
- \_\_\_\_\_ 12.5 The student will perform translations.
- \_\_\_\_\_ 12.6 The student will perform rotations.
- \_\_\_\_\_ 12.7 The student will illustrate translations as a composition of reflections.
- \_\_\_\_\_ 12.8 The student will illustrate rotations as a composition of reflections.
- \_\_\_\_\_ 12.9 The student will identify the identity transformation.
- \_\_\_\_\_ 12.10 The student will perform dilations.
- \_\_\_\_\_ 12.11 The student will identify similar figures.
- \_\_\_\_\_ 12.12 The student will identify properties of transformations.
- \_\_\_\_\_ 12.13 The student will prove properties of transformations.
- \_\_\_\_\_ 12.14 The student will identify isometries.
- \_\_\_\_\_ 12.15 The student will apply principles of isometries to solve problems.
- \_\_\_\_\_ 12.16 The student will identify line symmetry.
- \_\_\_\_\_ 12.17 The student will identify rotational symmetry.
- \_\_\_\_\_ 12.18 The student will identify point symmetry.
- \_\_\_\_\_ 12.19 The student will illustrate line symmetry.
- \_\_\_\_\_ 12.20 The student will illustrate rotational symmetry.
- \_\_\_\_\_ 12.21 The student will illustrate point symmetry.

**Goal 13: To comprehend similarity.**

- \_\_\_\_\_ 13.1 The student will apply proportions to problems involving similar figures.
- \_\_\_\_\_ 13.2 The student will identify similar triangles based on similarity theorems.
- \_\_\_\_\_ 13.3 The student will identify similar triangles based on side measures.
- \_\_\_\_\_ 13.4 The student will prove theorems involving similar triangles.
- \_\_\_\_\_ 13.5 The student will calculate geometric means.
- \_\_\_\_\_ 13.6 The student will find lengths of sides and related segments for right triangles by using proportions.
- \_\_\_\_\_ 13.7 The student will compute lengths of related segments in similar triangles.
- \_\_\_\_\_ 13.8 The student will find area of similar triangles.
- \_\_\_\_\_ 13.9 The student will find perimeter of similar triangles.
- \_\_\_\_\_ 13.10 The student will apply the proportions from similar triangles to solve word problems.

- \_\_\_\_\_ 13.11 The student will apply scale proportions to compute distances on a scale drawing.
- \_\_\_\_\_ 13.12 The student will find lengths of segments formed by chords, secants, and tangents.
- \_\_\_\_\_ 13.13 The student will identify the Golden ratio.
- \_\_\_\_\_ 13.14 The student will find the ratio of length to width of various rectangles.

**Goal 14: To understand trigonometry.**

- \_\_\_\_\_ 14.1 The student will identify the sine, cosine, and tangent trigonometric ratios.
- \_\_\_\_\_ 14.2 The student will find trigonometric ratios of right triangles.
- \_\_\_\_\_ 14.3 The student will find sides of triangles given certain trigonometric ratios.
- \_\_\_\_\_ 14.4 The student will find missing sides of 45-45-90 triangles.
- \_\_\_\_\_ 14.5 The student will find missing sides of 45-45-90 triangles.
- \_\_\_\_\_ 14.6 The student will find missing angles of 45-45-90 triangles.
- \_\_\_\_\_ 14.7 The student will find missing sides of 30-60-90 triangles.
- \_\_\_\_\_ 14.8 The student will find missing angles of 30-60-90 triangles.
- \_\_\_\_\_ 14.9 The student will determine special triangles given side lengths.
- \_\_\_\_\_ 14.10 The student will find the trigonometric ratios for angles using a calculator.
- \_\_\_\_\_ 14.11 The student will find missing sides of right triangles.
- \_\_\_\_\_ 14.12 The student will find missing angles of right triangles.
- \_\_\_\_\_ 14.13 The student will prove trigonometric identities.
- \_\_\_\_\_ 14.14 The student will apply trigonometric ratios to solve right triangles.
- \_\_\_\_\_ 14.15 The student will apply trigonometric ratios to solve word problems.
- \_\_\_\_\_ 14.16 The student will apply the relation between the apothem and side of a regular polygon.
- \_\_\_\_\_ 14.17 The student will apply trigonometry to regular polygons.

**Goal 15: To master constructions.**

- \_\_\_\_\_ 15.1 The student will determine the difference between a sketch, a drawing, and a construction.
- \_\_\_\_\_ 15.2 The student will copy a line segment.
- \_\_\_\_\_ 15.3 The student will bisect a line segment.
- \_\_\_\_\_ 15.4 The student will copy an angle.
- \_\_\_\_\_ 15.5 The student will bisect an angle.
- \_\_\_\_\_ 15.6 The student will construct perpendicular lines.
- \_\_\_\_\_ 15.7 The student will construct angles.
- \_\_\_\_\_ 15.8 The student will copy polygons.
- \_\_\_\_\_ 15.9 The student will construct parallel lines.
- \_\_\_\_\_ 15.10 The student will construct the circumcenter of a triangle.
- \_\_\_\_\_ 15.11 The student will construct the orthocenter of a triangle.
- \_\_\_\_\_ 15.12 The student will construct the incenter of a triangle.
- \_\_\_\_\_ 15.13 The student will construct the centroid of a triangle.
- \_\_\_\_\_ 15.14 The student will construct the circumscribed circle of a triangle.
- \_\_\_\_\_ 15.15 The student will construct the inscribed circle of a triangle.

- \_\_\_\_\_ 15.16 The student will construct regular polygons inscribed in circles.
- \_\_\_\_\_ 15.17 The student will construct congruent subdivisions of a segment.
- \_\_\_\_\_ 15.18 The student will construct a regular hexagon from a circle.
- \_\_\_\_\_ 15.19 The student will identify the three impossible constructions.