

Geometry

SCOPE + SEQUENCE

CONTENT OFFERED IN CARNEGIE LEARNING™ MATH SOLUTIONS

Textbook	Cognitive Tutor®Software	Skills Covered
Print Chapter	Software Unit	The student will:
1. Perimeter and Area	1. Perimeter and Area of Squares and Rectangles 2. Perimeter and Area of Parallelograms 3. Perimeter and Area of Triangles 4. Perimeter and Area of Trapezoids 5. Circumference and Area of Circles 6. Area Composition 7. Perimeter and Area of Regular Polygons	<ul style="list-style-type: none"> Classify polygons by the number of sides. Find perimeters of polygons. Find areas of polygons. Find unknown measures of polygons. Find area of regular polygons. Find circumferences of circles. Find areas of circles. Find areas of composite figures.
2. Volume and Surface Area	8. Volume and Surface Area of Right Prisms 9. Volume and Surface Area of Cylinders 10. Volume of Pyramids 11. Volume of Cones 12. Volume and Surface Area of Spheres	<ul style="list-style-type: none"> Investigate the volume of a solid. Investigate the surface area of a solid. Find volumes of prisms. Find surface areas of prisms. Find the minimum surface area of a rectangle prism with a fixed volume. Identify pyramids. Find volumes of three-dimensional solids. Find surface areas of three-dimensional solids.
3. Introduction to Angles and Triangles	13. Angles and Angle Pairs 14. Triangle Classification 15. Angle Relationships in a Triangle	<ul style="list-style-type: none"> Identify and name lines, line segments, rays, and angles. Measure and classify angles. Identify complementary and supplementary angles. Identify vertical angles. Identify linear pairs. Find sums of measures of angles in triangles. Use the Triangle Sum Theorem. Use the Exterior Angle Theorem. Discover the Exterior Angle Inequality. Classify triangles by angles. Classify triangles by side length. Use the Triangle Inequality. Investigate the relationship between the sides and angles of triangles.
4. Right Triangle Geometry	16. Pythagorean Theorem 17. Special Right Triangles 18. Distance, Midpoint, and Slope	<ul style="list-style-type: none"> Simplify square roots. Use the pythagorean theorem and its converse. Find unknown side lengths of special right triangles. Find areas of special right triangles. Use the Distance Formula and the Midpoint Formula.
5. Parallel and Perpendicular Lines	19. Angles Formed by Parallel Lines	<ul style="list-style-type: none"> Determine the relationship between angles formed by two parallel lines and a transversal. Use a compass and straightedge to construct parallel lines. Prove theorems related to angles formed by two parallel lines and a transversal. Find the equations of lines parallel or perpendicular to given lines. Bisect angles and line segments by using a compass and straightedge. Draw angle bisectors and perpendicular bisectors in a triangle. Find points of concurrency of triangles. Compare points of concurrency.
6. Simple Transformations	20. Geometric Transformations	<ul style="list-style-type: none"> Use a compass and protractor to reflect a line segment. Reflect polygons and points in the x- and y-axes. Reflect polygons and points in the line given by $y = x$. Perform rotations by using a compass and protractor. Perform multiple transformations. Determine the relationship between reflections and rotations. Determine the relationship between reflections and translations. Determine the scale factor in a dilation. Use a compass and a straightedge to perform a dilation. Determine lines of symmetry of figures. Determine rotational symmetry of figures.

CONTENT OFFERED IN CARNEGIE LEARNING™ MATH SOLUTIONS

Textbook	Cognitive Tutor® Software	Skills Covered
Print Chapter	Software Unit	The student will:
7. Similarity	21. Similar Triangles	<ul style="list-style-type: none"> • Write, simplify, and compare ratios. • Write and solve proportions. • Identify similar and congruent polygons. • Identify corresponding parts of similar and congruent polygons. • Find unknown measures in similar and congruent polygons. • Find unknown measures in a scale model. • Use given information to show that two triangles are similar. • Use indirect measurement to find heights and widths of objects. • Find the scale factor of similar solids. • Find the dimension of a similar solid given the scale factor.
8. Congruence		<ul style="list-style-type: none"> • Identify corresponding angles and corresponding sides in congruent polygons. • Determine whether two polygons are congruent. • Find unknown measures in polygons. • Use given information to show that two triangles are congruent. • Explore fractals. • Draw a stage of the Koch Snowflake.
9. Quadrilaterals	22. Polygon Classification 23. Properties of Quadrilaterals and Parallelograms 24. Properties of Trapezoids and Rectangles 25. Properties of Rhombi	<ul style="list-style-type: none"> • Classify quadrilaterals. • Name quadrilaterals and parts of quadrilaterals. • Determine properties of quadrilaterals. • Determine the sum of the interior angle measures in a convex polygon. • Determine the measure of an interior angle of a regular polygon. • Determine the number of sides in a regular polygon given the measure of an interior angle. • Determine the sum of the exterior angle measures in a polygon. • Classify quadrilaterals in the plane. • Classify properties of quadrilaterals in the plane.
10. Circles	26. Central and Inscribed Angles in Circles 27. Circle Chords 28. Interior and Exterior Angles in Circles	<ul style="list-style-type: none"> • Identify parts of a circle. • Determine the measures of arcs. • Determine the measures of inscribed angles and central angles • Determine measures of angles formed by line segments on a circle. • Determine the relationships between a chord and a diameter of a circle. • Determine the relationships between congruent chords and their minor arcs. • Determine the relationship between a tangent line and a radius. • Determine the relationship between congruent tangent segments.
11. Right Triangle Trigonometry	29. Right Triangles and Trigonometric Functions	<ul style="list-style-type: none"> • Write ratios that represent tangents of angles. • Find and use tangents of angles. • Write ratios that represent sines of angles. • Find and use sines of angles. • Write ratios that represent cosines of angles. • Find and use cosines of angles. • Solve problems that involve the angle of elevation and the angle of depression.
12. Extensions in Area and Volume	30. Quadratic Equation Solving 31. Backwards Volume and Surface Area	<ul style="list-style-type: none"> • Determine properties of triangles and quadrilaterals inscribed in circles. • Identify polyhedra formed by nets. • Draw nets for polyhedra. • Use nets to determine surface areas. • Determine the shapes of intersections of solids and planes. • Determine the number of faces, edges, and vertices in different polyhedra. • Derive Euler's formula. • Draw the top, side, and front views of a solid given an isometric drawing. • Draw an isometric drawing of a solid given the top, front, and side views.