



Geometry – Part 2

Michigan State High School Mathematics Content Expectations

Course Description

In this course the student will learn the concepts of geometry including coordinate geometry, logic, and proofs involving parallel lines, congruent triangles, quadrilaterals, similarity, right triangles, trigonometry, and circles. The student will be expected to explore, research, evaluate, and apply concepts using various technologies.

Text Book

Text: Schultz, James E., et al. *Geometry*. Austin: Holt, Rinehart and Winston, 2004.

Unit 1 Description

This unit will introduce students to geometric figures in three-dimensional space. Students will extend ideas and concepts about plane figures to three-dimensional figures, or spatial figures. Volume and surface area are introduced. Students will begin calculating the surface area and volume of prisms and pyramids. Students will apply what they already know about points and lines in a plane to points, lines, and planes in space.

Essential Content and Skills

The learner will master the following topics:

- Use isometric grid paper to draw three-dimensional shapes built with cubes.
- Develop an understanding of orthographic projection.
- Develop a preliminary understanding of volume and surface area.
- Define polyhedron.
- Identify the relationships of points, lines, segments, planes, and angles in three-dimensional space.
- Define dihedral angle.
- Define *prism*, *right prism*, and *oblique prism*.
- Examine the shapes of lateral faces of prisms.
- Solve problems using the diagonal measure of a right prism.
- Demonstrate understanding and mastery of problem-solving skills and geometric concepts.
- Solve problems using the geometric and algebraic thought processes.
- Define the equation of a line and the equation of a plane in space.
- Solve problems using the equations of lines and planes in space.
- Identify and define the basic concepts of perspective drawing.
- Apply perspective drawing concepts to creating perspective drawings.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

- Explore ratios of surface area to volume.
 - Develop the concepts of maximizing volume and minimizing surface area.
 - Define and use a formula for finding the surface area of a right prism.
 - Define and use a formula for finding the volume of a right prism.
 - Use Cavalier's Principle to develop a formula for the volume of a right or oblique prism.
 - Define and use a formula for the surface area of a regular pyramid.
 - Define and use a formula for the volume of a pyramid.
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Unit 1 Michigan State Content Expectations

[Click here to view the Michigan DOE Curriculum Content Standards.](#)

Unit 1 Lesson 1: Solid Shapes

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 1 Lesson 2: Spatial Relationships

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 1 Lesson 3: Prisms

State Standard	Description
G1.2.3	Know a proof of the Pythagorean Theorem, and use the Pythagorean Theorem and its converse to solve multi-step problems. Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify symmetries of pyramids, prisms, cones, cylinders, hemispheres, and spheres.
G1.8.1	
G1.8.2	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 1 Lesson 4: Coordinates in Three Dimensions

State Standard	Description
G2.2.1	Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure. Identify or sketch cross sections of three-dimensional figures. Identify or sketch solids formed by revolving two-dimensional figures around lines.
G2.2.2	

Unit 1 Lesson 5: Mid-Unit Review

State Standard	Description
G1.2.3	Know a proof of the Pythagorean Theorem, and use the Pythagorean Theorem and its converse to solve multi-step problems. Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify symmetries of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure. Identify or sketch cross sections of three-dimensional figures. Identify or sketch solids formed by revolving two-dimensional figures around lines.
G1.8.1	
G1.8.2	
G2.2.1	
G2.2.2	

Unit 1 Lesson 6: Lines and Planes in Space

State Standard	Description
G2.2.1	Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure. Identify or sketch cross sections of three-dimensional figures. Identify or sketch solids formed by revolving two-dimensional figures around lines.
G2.2.2	

Unit 1 Lesson 7: Perspective Drawing

State Standard	Description
G2.2.1	Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure. Identify or sketch cross sections of three-dimensional figures. Identify or sketch solids formed by revolving two-dimensional figures around lines.
G2.2.2	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 1 Lesson 8: Surface Area and Volume

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 1 Lesson 9: Surface Area and Volume of Prisms

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 1 Lesson 10: Surface Area and Volume of Pyramids

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 2 Description

In this unit, students will calculate the surface area and volume of cylinders, cones, and spheres. Students will also explore three-dimensional symmetry and learn how to maximize the volume of a prism while minimizing surface area. Students will explore similar figures through dilations in the plane and begin developing similar triangle postulates and theorems.

Essential Content and Skills

The learner will master the following topics:

- Define and use a formula for the surface area of a right cylinder.
- Define and use a formula for the volume of a cylinder.
- Define and use a formula for the surface area of a right cone.
- Define and use a formula for the volume of a cone.
- Define and use a formula for the surface area of a sphere.
- Define and use a formula for the volume of a sphere.
- Define various transformations in three-dimensional space.
- Solve problems using transformations in three-dimensional space.
- Construct a dilation of a segment and a point using a scale factor.
- Construct a dilation of a closed plane figure.
- Define similar polygons.
- Use properties of proportions and scale factors to solve problems involving similar polygons.
- Develop the AA Triangle Similarity Postulate and the SSS and SAS Triangle Similarity Theorems.
- Develop and prove the Side-Splitting Theorem.
- Use the Side-Splitting Theorem to solve problems.

Unit 2 Michigan State Content Expectations

Unit 2 Lesson 1: Surface Area and Volume of Cylinders

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 2 Lesson 2: Surface Area and Volume of Cones

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 2 Lesson 3: Surface Area and Volume of Spheres

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 2 Lesson 4: Three - Dimensional Symmetry

State Standard	Description
G1.8.2	Identify symmetries of pyramids, prisms, cones, cylinders, hemispheres, and spheres.
G3.1.1	Define reflection, rotation, translation, and glide reflection and find the image of a figure under a given isometry.
G3.1.2	Given two figures that are images of each other under an isometry, find the isometry and describe it completely.
G3.1.3	Find the image of a figure under the composition of two or more isometries and determine whether the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure.

Unit 2 Lesson 5: Mid-Unit Review

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify symmetries of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure. Define reflection, rotation, translation, and glide reflection and find the image of a figure under a given isometry. Given two figures that are images of each other under an isometry, find the isometry and describe it completely. Find the image of a figure under the composition of two or more isometries and determine whether the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure.
G1.8.2	
G2.2.1	
G3.1.1	
G3.1.2	
G3.1.3	

Unit 2 Lesson 6: Dilations and Scale Factors

State Standard	Description
G3.2.1	Know the definition of dilation and find the image of a figure under a given dilation. Given two figures that are images of each other under some dilation, identify the center and magnitude of the dilation.
G3.2.2	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 2 Lesson 7: Similar Polygons

State Standard	Description
G1.8.1	Solve multistep problems involving surface area and volume of pyramids, prisms, cones, cylinders, hemispheres, and spheres. Identify or sketch a possible three-dimensional figure, given two-dimensional views. Create a two-dimensional representation of a three-dimensional figure.
G2.2.1	

Unit 2 Lesson 8: Triangle Similarity

State Standard	Description
G2.3.3 G2.3.4	Prove that triangles are similar by using SSS, SAS, and AA conditions for similarity. Use theorems about similar triangles to solve problems with and without use of coordinates.

Unit 2 Lesson 9: Triangle Similarity Continued

State Standard	Description
G2.3.3 G2.3.4	Prove that triangles are similar by using SSS, SAS, and AA conditions for similarity. Use theorems about similar triangles to solve problems with and without use of coordinates.

Unit 2 Lesson 10: The Side-Splitting Theorem

State Standard	Description
G1.2.5	Solve multistep problems and construct proofs about the properties of medians, altitudes and perpendicular bisectors to the sides of a triangle, and the angle bisectors of a triangle. Using a straightedge and compass, construct these lines.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 3 Description

This unit is a continuation of unit 2 in that students will use similarity to measure distances indirectly and explore the area and volume of similar figures. In addition, this unit focuses on the relationships among parts of circles and various angles, segments, and arcs. Students develop theorems and rules through the activities and then apply those rules in problem-solving situations.

Essential Content and Skills

The learner will master the following topics:

- Use triangle similarity to measure distances indirectly.
- Develop and use similarity theorems for altitudes and medians of triangles.
- Develop and use ratios for areas of similar figures.
- Develop and use ratios for volumes of similar solids.
- Explore relationships between cross-sectional area, weight, and height.
- Define a circle and its associated parts and use them in constructions.
- Define and use the degree measure of arcs.
- Define and use the length measure of arcs.
- Prove a theorem about chords and their intercepted arcs.
- Define tangents and secants of circles.
- Understand the relationship between tangents and certain radii of circles.
- Understand the geometry of a radius perpendicular to a chord of a circle.
- Define *inscribed angle* and *intercepted arc*.
- Develop and use the Inscribed Angle Theorem and Corollaries.
- Define angles formed by secants and tangents of a circle.
- Develop and use theorems about measures of arcs intercepted by these angles.
- Design special cases of segments related to circles, including secant-secant, secant-tangent, and chord-chord.
- Develop and use theorems about measures of the segments.
- Develop and use the equation of a circle.
- Adjust a circle equation to move the center on a coordinate plane.

Unit 3 Michigan State Content Expectations

Unit 3 Lesson 1: Indirect Measurement and Additional Similarity Theorems

State Standard	Description
G1.2.5	Solve multistep problems and construct proofs about the properties of medians, altitudes and perpendicular bisectors to the sides of a triangle, and the angle bisectors of a triangle. Using a straightedge and compass, construct these lines.
G2.3.3	Prove that triangles are similar by using SSS, SAS, and AA conditions for similarity.
G2.3.4	Use theorems about similar triangles to solve problems with and without use of coordinates.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 3 Lesson 2: Area and Volume Ratios

State Standard	Description
G2.1.2	Know and demonstrate the relationships between the area formulas of various quadrilaterals.

Unit 3 Lesson 3: Chords and Arcs

State Standard	Description
G1.6.1	Solve multistep problems involving circumference and area of circles.
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Unit 3 Lesson 4: Tangents to Circles

State Standard	Description
G1.6.1	Solve multistep problems involving circumference and area of circles.
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Unit 3 Lesson 5: Mid-Unit Review

State Standard	Description
G1.2.5	Solve multistep problems and construct proofs about the properties of medians, altitudes and perpendicular bisectors to the sides of a triangle, and the angle bisectors of a triangle. Using a straightedge and compass, construct these lines.
G1.6.1	Solve multistep problems involving circumference and area of circles.
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.
G2.1.2	Know and demonstrate the relationships between the area formulas of various quadrilaterals.
G2.3.3	Prove that triangles are similar by using SSS, SAS, and AA conditions for similarity.
G2.3.4	Use theorems about similar triangles to solve problems with and without use of coordinates.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 3 Lesson 6: Inscribed Angles and Arcs

State Standard	Description
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Unit 3 Lesson 7: Angles Formed by Secants and Tangents

State Standard	Description
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Unit 3 Lesson 8: Segments of Tangents, Secants, and Chords

State Standard	Description
G1.6.2	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Unit 3 Lesson 9: Circles in the Coordinate Plane

State Standard	Description
G1.6.1	Solve multistep problems involving circumference and area of circles.
G1.6.2.	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 3 Lesson 10: Unit Review

State Standard	Description
G1.2.5	Solve multistep problems and construct proofs about the properties of medians, altitudes and perpendicular bisectors to the sides of a triangle, and the angle bisectors of a triangle. Using a straightedge and compass, construct these lines.
G1.6.1	Solve multistep problems involving circumference and area of circles.
G1.6.2.	Solve problems and justify arguments about chords and lines tangent to circles.
G1.6.3	Solve problems and justify arguments about central angles, inscribed angles, and triangles in circles.
G1.6.4	Know and use properties of arcs and sectors, and find lengths of arcs and areas of sectors.
G2.1.2	Know and demonstrate the relationships between the area formulas of various quadrilaterals.
G2.3.3	Prove that triangles are similar by using SSS, SAS, and AA conditions for similarity.
G2.3.4	Use theorems about similar triangles to solve problems with and without use of coordinates.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 4 Description

In this unit, students develop the tangent, sine, and cosine ratios from both right triangles and unit circles. They explore some trigonometric identities, apply trigonometric rotation equations, and use the law of sines and the law of cosines to solve problems. The chapter concludes with an introduction to vectors, vector addition, and rotations of objects by using transformation equations.

Essential Content and Skills

The learner will master the following topics:

- Develop the tangent ratio using right angles.
- Use a chart or graph to find the tangent of an angle or the angle for a given tangent.
- Solve problems using tangent ratios.
- Explore the relationship between the measure of an angle and its sine and cosine.
- Solve problems using sine and cosine ratios.
- Develop two trigonometric identities.
- Use a rotating ray on a coordinate plane to define angles measuring more than 90° and less than 0° .
- Define sine, cosine, and tangent for angles of any size.
- Develop the Law of Sines.
- Use the Law of Signs to solve triangles.
- Use the Law of Cosines, together with the Law of Sines, to solve triangles.
- Prove the acute case of the Law of Cosines.
- Define vector.
- Add two vectors.
- Use vectors and vector addition to solve problems.
- Use transformation equations to rotate points.
- Use a rotation matrix to rotate points or polygons.

Unit 4 Michigan State Content Expectations

Unit 4 Lesson 1: Tangent Ratios

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 4 Lesson 2: Sines and Cosines

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.

Unit 4 Lesson 3: Extending the Trigonometric Ratios

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.

Unit 4 Lesson 4: Mid-Unit Review

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.

Unit 4 Lesson 5: Mid-Unit Review Part 2

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 4 Lesson 6: The Law of Sines

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles. Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$. Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.
G1.3.2	
G1.3.3	

Unit 4 Lesson 7: The Law of Cosines

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles. Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$. Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.
G1.3.2	
G1.3.3	

Unit 4 Lesson 8: Vectors in Geometry

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles. Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$. Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.
G1.3.2	
G1.3.3	

Course Name - Part

Michigan State Curriculum Content Standards (continued)

Unit 4 Lesson 9: Rotations in the Coordinate Plane

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.
G3.1.2	Given two figures that are images of each other under an isometry, find the isometry and describe it completely.
G3.1.3	Find the image of a figure under the composition of two or more isometries and determine whether the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure.

Unit 4 Lesson 10: Unit Review

State Standard	Description
G1.3.1	Define the sine, cosine, and tangent of acute angles in a right triangle as ratios of sides. Solve problems about angles, side lengths, or areas using trigonometric ratios in right triangles.
G1.3.2	Know and use the Law of Sines and the Law of Cosines and use them to solve problems. Find the area of a triangle with sides a and b and included angle q using the formula $\text{Area} = (1/2) ab \sin q$.
G1.3.3	Determine the exact values of sine, cosine, and tangent for 0° , 30° , 45° , 60° , and their integer multiples and apply in various contexts.
G3.1.2	Given two figures that are images of each other under an isometry, find the isometry and describe it completely.
G3.1.3	Find the image of a figure under the composition of two or more isometries and determine whether the resulting figure is a reflection, rotation, translation, or glide reflection image of the original figure.