

Curriculum Map - Mathematics - HS Geometry Honors

Unit	Benchmarks
Trimester 1	
<p>Geometric Reasoning</p> <p><i>(updated 9/3/25)</i></p>	<p>MA.7.GR.1.5(A) Solve mathematical and real-world problems involving dimensions and areas of geometric figures, including scale drawings and scale factors.</p> <p>MA.912.NSO.2.2(A) Represent addition, subtraction, multiplication and conjugation of complex numbers geometrically on the complex plane.</p> <p>MA.912.AR.10.2(A) Given a mathematical or real-world context, write and solve problems involving geometric sequences.</p> <p>MA.912.AR.10.4(A) Recognize and apply the formula for the sum of a finite or an infinite geometric series to solve mathematical and real-world problems.</p> <p>MA.912.GR.2.4(A) Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.</p> <p>MA.912.GR.3.1(A) Given a mathematical or real-world context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles or quadrilaterals.</p> <p>MA.912.GR.3.2(A) Solve geometric problems involving circles, triangles and quadrilaterals on the coordinate plane.</p> <p>MA.912.C.2.1(A) Apply and interpret derivatives geometrically and numerically.</p> <p>MA.912.C.4.10(A) Apply Riemann sums, the Trapezoidal Rule and technology to approximate definite integrals of functions represented algebraically, geometrically and by tables of values.</p>
<p>Apply properties of transformations to describe congruence or similarity.</p> <p><i>(updated 9/3/25)</i></p>	<p>MA.912.GR.1.1(A) Prove relationships and theorems about lines and angles. Solve mathematical and real-world problems involving postulates, relationships and theorems of lines and angles.</p> <p>MA.912.GR.1.2(A) Prove triangle congruence or similarity using Side-Side-Side, Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, Angle-Angle and Hypotenuse-Leg.</p> <p>MA.912.GR.1.3(A) Prove relationships and theorems about triangles. Solve mathematical and realworld problems involving postulates, relationships and theorems of triangles.</p> <p>MA.912.GR.1.4(A) Prove relationships and theorems about parallelograms. Solve mathematical and real-world problems involving postulates, relationships and theorems of parallelograms.</p> <p>MA.912.GR.1.5(A) Prove relationships and theorems about trapezoids. Solve mathematical and real-world problems involving postulates, relationships and theorems of trapezoids.</p> <p>MA.912.GR.1.6(A) Solve mathematical and real-world problems involving congruence or similarity in two-dimensional figures.</p> <p>MA.912.GR.2.1(A) Given a preimage and image, describe the transformation and represent the transformation algebraically using coordinates.</p> <p>MA.912.GR.2.2(A) Identify transformations that do or do not preserve distance.</p> <p>MA.912.GR.2.3(A) Specify a sequence of transformations that will map a given figure onto itself or onto another congruent or similar figure.</p> <p>MA.912.GR.2.4(A) Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.</p> <p>MA.912.GR.2.5(A) Apply rigid transformations to map one figure onto another to justify that the two figures are congruent.</p> <p>MA.912.GR.2.6(A) Justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.</p> <p>MA.912.GR.2.7(A) Apply an appropriate transformation to map one figure onto another to justify that the two figures are similar.</p> <p>MA.912.GR.2.8(A) Justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.</p> <p>MA.912.GR.3.1(A) Given a mathematical or real-world context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles or quadrilaterals.</p> <p>MA.912.GR.3.2(A) Solve geometric problems involving circles, triangles and quadrilaterals on the coordinate plane.</p> <p>MA.912.GR.3.3(A) Solve mathematical and real-world problems on the coordinate plane that involve finding the coordinates of a point on a line segment including the midpoint.</p> <p>MA.912.GR.3.4(A) Solve mathematical and real-world problems on the coordinate plane involving perimeter or area of polygons.</p>

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<p>Use coordinate geometry to solve problems or prove relationships. <i>(updated 9/3/25)</i></p>	<p>MA.912.GR.2.1(A) Given a preimage and image, describe the transformation and represent the transformation algebraically using coordinates.</p> <p>MA.912.GR.2.2(A) Identify transformations that do or do not preserve distance.</p> <p>MA.912.GR.2.3(A) Specify a sequence of transformations that will map a given figure onto itself or onto another congruent or similar figure.</p> <p>MA.912.GR.2.4(A) Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.</p> <p>MA.912.GR.2.5(A) Apply rigid transformations to map one figure onto another to justify that the two figures are congruent.</p> <p>MA.912.GR.2.6(A) Justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.</p> <p>MA.912.GR.2.7(A) Apply an appropriate transformation to map one figure onto another to justify that the two figures are similar.</p> <p>MA.912.GR.2.8(A) Justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.</p> <p>MA.912.GR.3.1(A) Given a mathematical or real-world context, use coordinate geometry to classify or justify definitions, properties and theorems involving circles, triangles or quadrilaterals.</p> <p>MA.912.GR.3.2(A) Solve geometric problems involving circles, triangles and quadrilaterals on the coordinate plane.</p> <p>MA.912.GR.3.3(A) Solve mathematical and real-world problems on the coordinate plane that involve finding the coordinates of a point on a line segment including the midpoint.</p> <p>MA.912.GR.3.4(A) Solve mathematical and real-world problems on the coordinate plane involving perimeter or area of polygons.</p>
<p>Unit</p>	<p>Benchmarks</p>
<p>Trimester 2</p>	
<p>Use geometric measurement and dimensions to solve problems. <i>(updated 9/3/25)</i></p>	<p>MA.912.GR.4.1(A) Identify the shapes of two-dimensional cross-sections of three-dimensional figures.</p> <p>MA.912.GR.4.2(A) Identify three-dimensional objects generated by rotations of two-dimensional figures.</p> <p>MA.912.GR.4.3(A) Determine how changes in dimensions affect the area of two-dimensional figures and the surface area or volume of three-dimensional figures.</p> <p>MA.912.GR.4.4(A) Solve mathematical and real-world problems involving the area of twodimensional figures.</p> <p>MA.912.GR.4.5(A) Solve mathematical and real-world problems involving the volume of threedimensional figures limited to cylinders, pyramids, prisms, cones and spheres.</p> <p>MA.912.GR.4.6(A) Solve mathematical and real-world problems involving the surface area of three-dimensional figures limited to cylinders, pyramids, prisms, cones and spheres.</p>
<p>Make formal geometric constructions with a variety of tools and methods. <i>(updated 9/3/25)</i></p>	<p>MA.912.GR.5.1(A) Construct a copy of a segment or an angle.</p> <p>MA.912.GR.5.2(A) Construct the bisector of a segment or an angle, including the perpendicular bisector of a line segment.</p> <p>MA.912.GR.5.3(A) Construct the inscribed and circumscribed circles of a triangle.</p> <p>MA.912.GR.5.4(A) Construct a regular polygon inscribed in a circle. Regular polygons are limited to triangles, quadrilaterals and hexagons.</p> <p>MA.912.GR.5.5(A) Given a point outside a circle, construct a line tangent to the circle that passes through the given point.</p>
<p>Use properties and theorems related to circles <i>(updated 9/3/25)</i></p>	<p>MA.912.GR.6.1(A) Solve mathematical and real-world problems involving the length of a secant, tangent, segment or chord in a given circle.</p> <p>MA.912.GR.6.2(A) Solve mathematical and real-world problems involving the measures of arcs and related angles, limited to central, inscribed and intersections of a chord, secants or tangents.</p> <p>MA.912.GR.6.3(A) Solve mathematical problems involving triangles and quadrilaterals inscribed in a circle.</p> <p>MA.912.GR.6.4(A) Solve mathematical and real-world problems involving the arc length and area of a sector in a given circle.</p> <p>MA.912.GR.6.5(A) Apply transformations to prove that all circles are similar.</p>
<p>Unit</p>	<p>Benchmarks</p>
<p>Trimester 3</p>	

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<p>Apply geometric and algebraic representations of conic sections.</p> <p><i>(updated 9/3/25)</i></p>	<p>MA.912.GR.2.1(A) Given a preimage and image, describe the transformation and represent the transformation algebraically using coordinates.</p> <p>MA.912.GR.2.2(A) Identify transformations that do or do not preserve distance.</p> <p>MA.912.GR.2.3(A) Specify a sequence of transformations that will map a given figure onto itself or onto another congruent or similar figure.</p> <p>MA.912.GR.2.4(A) Given a geometric figure and a sequence of transformations, draw the transformed figure on a coordinate plane.</p> <p>MA.912.GR.2.5(A) Apply rigid transformations to map one figure onto another to justify that the two figures are congruent.</p> <p>MA.912.GR.2.6(A) Justify the criteria for triangle congruence using the definition of congruence in terms of rigid transformations.</p> <p>MA.912.GR.2.7(A) Apply an appropriate transformation to map one figure onto another to justify that the two figures are similar.</p> <p>MA.912.GR.2.8(A) Justify the criteria for triangle similarity using the definition of similarity in terms of non-rigid transformations.</p>
<p>Grade 912: Trigonometry</p> <p><i>(updated 9/9/25)</i></p>	<p>MA.912.T.1.1(A) Define trigonometric ratios for acute angles in right triangles.</p> <p>MA.912.T.1.2(A) Solve mathematical and real-world problems involving right triangles using trigonometric ratios and the Pythagorean Theorem.</p> <p>MA.912.T.1.3(A) Apply the Law of Sines and the Law of Cosines to solve mathematical and realworld problems involving triangles.</p> <p>MA.912.T.1.4(A) Solve mathematical problems involving finding the area of a triangle given two sides and the included angle.</p> <p>MA.912.T.1.5(A) Prove Pythagorean Identities. Apply Pythagorean Identities to calculate trigonometric ratios and to solve problems.</p> <p>MA.912.T.1.6(A) Prove the Double-Angle, Half-Angle, Angle Sum and Difference formulas for sine, cosine, and tangent. Apply these formulas to solve problems.</p> <p>MA.912.T.1.7(A) Simplify expressions using trigonometric identities.</p> <p>MA.912.T.1.8(A) Solve trigonometric equations within a mathematical or real-world context, applying inverse functions and using technology when appropriate.</p> <p>MA.912.T.2.1(A) Define the trigonometric functions for any angle using right triangles drawn in the unit circle. Determine the values of sine, cosine and tangent of $\pi/3$, $\pi/4$ and $\pi/6$ and their multiples using special triangles.</p> <p>MA.912.T.2.2(A) Define and determine the sine, cosine, tangent, cosecant, secant and cotangent of angles using the unit circle.</p> <p>MA.912.T.2.3(A) Given angles measured in radians or degrees, calculate the values of the six trigonometric functions.</p> <p>MA.912.T.3.1(A) Describe and demonstrate the connections between right triangle ratios and trigonometric functions.</p> <p>MA.912.T.3.2(A) On the coordinate plane, express the values of sine, cosine and tangent for $\pi - x$, $\pi + x$ and $2\pi - x$ in terms of their values for x, where x is any real number.</p> <p>MA.912.T.3.3(A) Given a mathematical or real-world context, choose sine, cosine or tangent trigonometric functions to model periodic phenomena with specified amplitude, frequency, horizontal shift and midline.</p> <p>MA.912.T.3.4(A) Given a table, equation or written description of a trigonometric function, graph that function and determine key features.</p> <p>MA.912.T.3.5(A) Graph and solve mathematical and real-world problems that are modeled with trigonometric functions. Interpret key features and determine domain constraints in terms of the context.</p> <p>MA.912.T.3.6(A) Verify that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.</p> <p>MA.912.T.3.7(A) Solve mathematical and real-world problems involving applications of trigonometric functions using graphing technology when appropriate.</p> <p>MA.912.T.4.1(A) Define polar coordinates and relate polar coordinates to Cartesian coordinates with and without the use of technology.</p> <p>MA.912.T.4.2(A) Represent equations given in rectangular coordinates in terms of polar coordinates.</p> <p>MA.912.T.4.3(A) Graph equations in the polar coordinate plane with and without the use of graphing technology.</p> <p>MA.912.T.4.4(A) Identify and graph special polar equations, including circles, cardioids, limacons, rose curves and lemniscates.</p> <p>MA.912.T.4.5(A) Sketch the graph of a curve in the plane represented parametrically, indicating the direction of motion.</p> <p>MA.912.T.4.6(A) Convert from a parametric representation of a plane curve to a rectangular equation, and convert from a rectangular equation to a parametric representation of a plane curve.</p>

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MA.912.T.4.7(A)

Apply parametric equations to model applications involving motion in the plane.

Extend trigonometric functions to the unit circle.

Graph and apply trigonometric relations and functions.