

Louisiana High School Geometry
Mathematics Grade Level Expectations, Grades 9–12

Grade 9	Boardworks High School Geometry presentation
Measurement	
17. Distinguish between precision and accuracy (M-1-H)	–
18. Demonstrate and explain how the scale of a measuring instrument determines the precision of that instrument (M-1-H)	Continuous measurements
19. Use significant digits in computational problems (M-1-H) (N-2-H)	–
20. Demonstrate and explain how relative measurement error is compounded when determining absolute error (M-1-H) (M-2-H) (M-3-H)	Calculations involving bounds
21. Determine appropriate units and scales to use when solving measurement problems (M-2-H) (M-3-H) (M-1-H)	Converting units Customary units Area formulas and calculations
22. Solve problems using indirect measurement (M-4-H)	Dilation
Geometry	
23. Use coordinate methods to solve and interpret problems (e.g., slope as rate of change, intercept as initial value, intersection as common solution, midpoint as equidistant) (G-2-H) (G-3-H)	Slopes and intercepts Linear graphs The distance between two points The midpoint of a line segment Parallel and perpendicular lines The equation of a straight line
24. Graph a line when the slope and a point or when two points are known (G-3-H)	The equation of a straight line
25. Explain slope as a representation of “rate of change” (G-3-H) (A-1-H)	Slopes and intercepts
Grade 10	
Measurement	
7. Find volume and surface area of pyramids, spheres, and cones (M-3-H) (M-4-H)	Pyramids Cylinders, cones and spheres
8. Model and use trigonometric ratios to solve problems involving right triangles (M-4-H) (N-6-H)	Right triangles The sine ratio The cosine ratio The tangent ratio Trigonometry summary
Geometry	

<p>9. Construct 2- and 3-dimensional figures when given the name, description, or attributes, with and without technology (G-1-H)</p>	<p>Constructing bisecting lines and angles Constructing triangles Polygons Quadrilaterals Triangles Parts of a circle Prisms Pyramids Cylinders, cones and spheres</p>
<p>10. Form and test conjectures concerning geometric relationships including lines, angles, and polygons (i.e., triangles, quadrilaterals, and n-gons), with and without technology (G-1-H) (G-4-H) (G-6-H)</p>	<p>Triangles Quadrilaterals Polygons Lines Angles Interior and exterior angles in polygons Using polygons The Triangle Inequality Theorem</p>
<p>11. Determine angle measurements using the properties of parallel, perpendicular, and intersecting lines in a plane (G-2-H)</p>	<p>Lines Parallel and perpendicular lines Angles</p>
<p>12. Apply the Pythagorean theorem in both abstract and real-life settings (G-2-H)</p>	<p>The Pythagorean Theorem Finding the diagonal in a rectangular prism Finding the distance between two points using the Pythagorean Theorem Finding the height of triangles using the Pythagorean Theorem Finding the length of diagonals using the Pythagorean Theorem Using the Pythagorean Theorem to solve problems in context Identifying right triangles Pythagorean triples Similar right triangles Calculating sides of a triangle</p>

13. Solve problems and determine measurements involving chords, radii, arcs, angles, secants, and tangents of a circle (G-2-H)	Parts of a circle Radius and circumference The length of an arc Tangents and normals Using circle properties Angles in a circle The area of a sector
14. Develop and apply coordinate rules for translations and reflections of geometric figures (G-3-H)	Translation Reflection symmetry Reflection symmetry in 3-D shapes
15. Draw or use other methods, including technology, to illustrate dilations of geometric figures (G-3-H)	Dilation The center of dilation
16. Represent and solve problems involving distance on a number line or in the plane (G-3-H)	The distance between two points Finding the distance between two points using the Pythagorean Theorem
17. Compare and contrast inductive and deductive reasoning approaches to justify conjectures and solve problems (G-4-H) (G-6-H)	–
18. Determine angle measures and side lengths of right and similar triangles using trigonometric ratios and properties of similarity, including congruence (G-5-H) (M-4-H)	Dilation The center of dilation Trigonometry summary Right triangles Congruence and similarity Using congruence and similarity Similar right triangles The sine ratio The cosine ratio The tangent ratio Opposite and adjacent sides Special right triangles
19. Develop formal and informal proofs (e.g., Pythagorean theorem, flow charts, paragraphs) (G-6-H)	The Pythagorean Theorem
Grades 11 - 12	
Measurement	
11. Calculate angle measures in degrees, minutes, and seconds (M-1-H)	Degrees and radians
12. Explain the unit circle basis for radian measure and show its relationship to degree measure of angles (M-1-H)	Degrees and radians

13. Identify and apply the unit circle definition to trigonometric functions and use this definition to solve real-life problems (M-4-H)	The sine, cosine and tangent of any angle
14. Use the Law of Sines and the Law of Cosines to solve problems involving triangle measurements (M-4-H)	The law of sines The law of cosines
Geometry	
15. Identify conic sections, including the degenerate conics, and describe the relationship of the plane and double-napped cone that forms each conic (G-1-H)	–
16. Represent translations, reflections, rotations, and dilations of plane figures using sketches, coordinates, vectors, and matrices (G-3-H)	Translation Reflection symmetry Reflection symmetry in 3-D shapes Reflection and rotational symmetry Rotation Rotational symmetry in 3-D shapes Rotational symmetry Dilation The center of dilation Tessellation Combining transformations