

**Mathematics**  
**Algebra 1: Academic**  
**Unit 12: Radicals and Geometry**

<b>Essential Understandings</b>	<ul style="list-style-type: none"> <li>▪ Understanding radicals and geometry is an important skill of future success in mathematics.</li> </ul>
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>▪ How do you evaluate radicals (square roots, cube roots, etc.)?</li> <li>▪ How do you simplify radicals?</li> <li>▪ How do you add, subtract, multiply, and divide radicals?</li> <li>▪ How do you solve radical equations?</li> <li>▪ How do you use the Pythagorean Theorem?</li> <li>▪ How do you use the distance formula?</li> <li>▪ How do you use the midpoint formula?</li> </ul>
<b>Essential Knowledge</b>	<ul style="list-style-type: none"> <li>▪ Square roots can be simplified.</li> <li>▪ Radicals can be added, subtracted, multiplied and divided.</li> <li>▪ Radical equations can be solved.</li> </ul>
<b>Vocabulary</b>	<ul style="list-style-type: none"> <li>▪ <u>Terms:</u> <ul style="list-style-type: none"> <li>○ radicals, radical equations, Pythagorean Theorem, hypotenuse, legs of a right triangle, distance formula, midpoint, midpoint formula.</li> </ul> </li> </ul>
<b>Essential Skills</b>	<ul style="list-style-type: none"> <li>▪ Evaluate square roots.</li> <li>▪ Simplify radicals</li> <li>▪ Add, subtract, multiply, and divide radicals.</li> <li>▪ Solve radical equations.</li> <li>▪ Use the Pythagorean Theorem.</li> <li>▪ Use the distance formula.</li> <li>▪ Use the midpoint formula.</li> </ul>
<b>Related Maine Learning Results</b>	<p><u>Mathematics</u></p> <p>A. Number  Real Number  A1.Students will know how to represent and use real numbers.</p> <ol style="list-style-type: none"> <li>a. Use the concept of nth root.</li> <li>b. Estimate the value(s) of roots and use technology to approximate them.</li> <li>c. Compute using laws of exponents.</li> <li>d. Multiply and divide numbers expressed in scientific notation.</li> </ol> <p>C. Geometry  Geometric Figures  C1.Students justify statements about polygons and solve problems.</p> <ol style="list-style-type: none"> <li>b. Solve for missing dimensions based on congruence and similarity.</li> <li>c. Use the Pythagorean Theorem in situations where right triangles are created by adding segments to figures.</li> <li>d. Use the distance formula.</li> </ol>

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<b>Sample Lessons And Activities</b>	<ul style="list-style-type: none"><li>▪ Students will orally respond to questions.</li><li>▪ Students will utilize worksheets and in their notes to demonstrate individual understanding of the concepts.</li></ul>
<b>Sample Classroom Assessment Methods</b>	<ul style="list-style-type: none"><li>▪ Quizzes</li><li>▪ Take-home worksheets</li><li>▪ Tests</li></ul>
<b>Sample Resources</b>	<ul style="list-style-type: none"><li>▪ <u>Publications:</u><ul style="list-style-type: none"><li>○ <u>Algebra 1</u> - Foerster</li></ul></li></ul>