

## UNIT OF STUDY

**Title:** “What’s Your Angle?” (Unit 18) **Subject/Course:** Integrated Algebra B Part 2 **Length:** 2½ weeks

**Topic:** Solv Polyn, Solv Ratios, Trig Ratios, Abs Val **Grade:** 9 **Designer:** Foresee/Phipps

### UNIT GOALS AND EXPECTATIONS

<p><b>IMPORTANT CONCEPTS/UNDERSTANDINGS:</b></p> <ul style="list-style-type: none"> <li>The solutions of a polynomial determine the zeros &amp; x-intercepts on its graph</li> <li>Quadratics equations can have zero, one, or two real solutions</li> <li>Similar units of dimension always are placed in the same spot in a ratio</li> <li>Sin, Cos, &amp; Tan all deal with right triangles</li> <li>Absolute Values equations can have zero, one, or two real solutions</li> <li>The adjacent/opposite side of a right triangle is not necessarily located in the same place every time</li> </ul>	<p><b>ESSENTIAL QUESTIONS:</b></p> <ul style="list-style-type: none"> <li>How do I tell if a polynomial/equation is a perfect square?</li> <li>What are the different ways of solving a quadratic equation?</li> <li>How do I tell the difference between an adjacent versus an opposite leg of a right triangle?</li> <li>Does “Cross-Multiply-&amp;-Divide” always work for proportions?</li> <li>Why does “Cross Multiply” work in a proportion?</li> </ul>
<p><b>STUDENT LEARNING EXPECTATIONS:</b></p> <ul style="list-style-type: none"> <li>NLF.3.AI.3 Solve <i>quadratic equations</i> using the appropriate methods with and without technology               <ul style="list-style-type: none"> <li><i>factoring</i></li> <li><i>quadratic formula</i> with real number solutions</li> </ul> </li> <li>SEI.2.AI.4 Solve and graph simple <i>absolute value equations and inequalities</i> Ex. <math> x  = 5</math>, <math> x  \leq 5</math>, <math> x  &gt; 5</math></li> </ul>	<ul style="list-style-type: none"> <li>T.2.G.6 Use <i>trigonometric ratios</i> (sine, cosine, tangent) to determine lengths of sides and measures of angles in right triangles including <i>angles of elevation</i> and <i>angles of depression</i></li> <li>T.2.G.5 Use the <i>special right triangle</i> relationships (30°-60°-90° and 45°-45°-90°) to solve problems</li> </ul>
<p><b>SPECIFIC DECLARATIVE KNOWLEDGE – What I know</b></p> <p>Vocabulary</p> <ul style="list-style-type: none"> <li>Adjacent</li> <li>Cosine</li> <li>Equivalent</li> <li>Hypotenuse</li> <li>Opposite</li> <li>Proportion</li> <li>Quadratic Equations</li> <li>Ratio</li> <li>Right Triangles</li> <li>Sine</li> <li>Tangent</li> <li>Absolute Values</li> <li>Zeroes</li> </ul>	<p><b>SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do</b></p> <ul style="list-style-type: none"> <li>Solve for a variable from a given polynomial equation</li> <li>Writing equivalent ratios</li> <li>Solving simple proportions</li> <li>Solving real world problems involving proportions</li> <li>Use Trigonometric Ratios to solve real world problems</li> <li>Write trig equations</li> <li>Solve proportions by multiplying both ratios by the other’s denominator (cross-multiply) and then solving the equation</li> </ul>
<p style="text-align: center;"><b>UNIT ASSESSMENTS</b> (Include tasks related to Dimensions 3 and 4 and Bloom’s Taxonomy)</p>	
<ul style="list-style-type: none"> <li>3 Open Response prompts requiring students to solve real world problems using trigonometric ratios</li> <li>“Building Heights” Activity</li> </ul>	

<b>Traditional Assessments:</b> <ul style="list-style-type: none"> <li>• Multiple Choice Quizzes over: solving polynomials, solving proportions, solving trigonometric ratios, solving absolute values</li> <li>• Vocabulary Test</li> <li>• Warm-Up Quizzes</li> <li>• Unit Test</li> </ul>	<b>Other Evidence of Learning:</b> <ul style="list-style-type: none"> <li>• “Homelearning”</li> <li>• Classwork</li> <li>• Warm-up exercises</li> </ul>
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ACTIVITIES AND LEARNING EXPERIENCES	Resources
<ul style="list-style-type: none"> <li>• Introduce Vocabulary using 4-Step Vocabulary Strategy</li> <li>• Use Mastery Math materials to practice concepts</li> <li>• “GCF and Factoring” PowerPoint</li> <li>• “Perplexing Polynomial Puzzle”</li> <li>• “Baseball Diamond” Activity</li> <li>• “Building Heights” Activity</li> <li>• “Slap the Board”</li> </ul>	<ul style="list-style-type: none"> <li>• Vocabulary List</li> <li>• 4-Step Vocabulary Worksheet</li> <li>• Mastery Math materials</li> <li>• <a href="http://www.ilovemath.org/index.php?option=com_docman&amp;task=cat_view&amp;gid=51">www.ilovemath.org/index.php?option=com_docman&amp;task=cat_view&amp;gid=51</a></li> <li>• (same url for “Perplexing Polynomial Puzzle”)</li> </ul>
Career Connections	
Land Surveyor, NASA, Scientist, Engineers, Physicians, Consultants, Architects, Weapons Specialist, Tank Operator, Pro Golfer, Pool Shark	