


## Precalculus Curriculum Bundle #4

<b>Title</b>		<b>Suggested Dates</b>
Begin Trigonometric Functions (Continued in bundles 5, 6, & 7)		October 26 – November 13 (14 days)

Big Idea/Enduring Understanding	Guiding Questions
<ul style="list-style-type: none"> <li>• The “Unit Circle” is circle with radius of one unit that is a tool used in understanding trigonometric ratios of angles found in right triangles.</li> <li>• Angle measures can be expressed in degrees or in radians.</li> <li>• Pythagorean Theorem and trigonometric ratios can be used to find distances/lengths of the sides of right triangles, and trig ratios can also be used to find angle measures of a triangle.</li> </ul>	<ol style="list-style-type: none"> <li>1. How does the Pythagorean Theorem relate to the Pythagorean Identities?</li> <li>2. What is a “radian” and what is the significance of a “radian” measure?</li> <li>3. What is the significance of the unit circle?</li> <li>4. For what purpose are trigonometric ratios used?</li> <li>5. What information is needed to find an angle measure using trig ratios? To find a side length of a triangle using trig ratios? To find a side length of a triangle using Pythagorean Theorem?</li> </ol>

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the District Curriculum.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)	
<p><b>P.1 The student defines functions, describes characteristics of functions, and translates among verbal, numerical, graphical, and symbolic representations of functions, including polynomial, rational, power (including radical), exponential, logarithmic, <b>trigonometric</b>, and piecewise-defined functions.</b></p> <p>P.1A describe parent functions symbolically and graphically, including <math>f(x) = x^n</math>, <math>f(x) = \ln x</math>, <math>f(x) = \log_a x</math>, <math>f(x) = 1/x</math>, <math>f(x) = e^x</math>, <math>f(x) = a^x</math>, <math>f(x) = \sin x</math>, and <math>f(x) = \arcsin x</math>, etc.</p>	<ul style="list-style-type: none"> <li>• Graph the parent function on a graphing calculator.</li> <li>• Graph the parent functions without a calculator using a table of values.</li> <li>• Derive a function from a table of values using the statistical function of a graphing calculator.</li> <li>• Recognize parent functions from values displayed in a table or a graph.</li> <li>• Recognize parent functions from equations.</li> </ul>	<p><b>PreCalculus with Limits</b> Houghton Mifflin Company / Larson – Hostetler</p> <p>Section 4.1 Radian and Degree Measure</p> <p>Section 4.2 Unit Circle</p> <p>Section 4.3 Right Triangle Trigonometry</p>	<p><b>Laying the Foundations Connecting PreCalculus to Advanced Placement Mathematics</b> Advanced Placement Strategies, Inc.</p>

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<p><b>P.3 The student uses functions and their properties, tools and technology to model and solve meaningful problems.</b></p> <p>P.3A Investigate properties of trigonometric and polynomial functions.</p>	<ul style="list-style-type: none"> <li>• Use degree and radian measures.</li> <li>• Develop the unit circle and note patterns and relationships.</li> <li>• Use the unit circle to give the exact value of the six trigonometric functions.</li> <li>• Understand and use reference angle, standard position of angles and coterminal angles.</li> <li>• Given an angle in standard position whose terminal side intersects a circle: define the trig functions in terms of <math>x</math>, <math>y</math>, and <math>r</math>.</li> <li>• Connect the unit circle to the graphs of the trigonometric functions.</li> <li>• Connect the definitions of sine, cosine, and tangent to the other trigonometric functions (cosecant, secant, and cotangent) and <math>x</math>, <math>y</math>, and <math>r</math>.</li> <li>• Develop the inverse trigonometric functions and define the domain and range of each.</li> <li>• Apply the inverse trigonometric functions in problem situations.</li> </ul>	<p><b>PreCalculus with Limits</b> Houghton Mifflin Company / Larson – Hostetler</p> <p>Section 4.1 Radian and Degree Measure</p> <p>Section 4.2 Trigonometric Functions: The Unit Circle</p> <p>Section 4.4 Trigonometric Functions of Any Angle</p>	
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