

**GHS Curriculum Map  
Math  
Grades 10-12**

**Subject/Course Title:** PreCalculus

**Unit Title:** Review of Summer Work (Unit 1)

**Unit Overview**

The purpose of the initial unit is to enhance a student's chance of success in Precalculus. It is used to make sure that each student has background knowledge and skills to move forward into Precalculus.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b><i>Instructional Strategies</i></b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
1 week	<b><i>CT Core Standards</i></b> A.SSE.A.1.A A.SSE.B.3 <b>A.SSE.B.3.A</b> A.SSE.B.3.C <b>A.SSE.B.3.B</b> <b>A.REI.B.3</b> <b>A.REI.B.4</b> A.REI.A.2 F.IF.A.2	1. What knowledge is essential for success in Precalculus?	<ul style="list-style-type: none"> <li>● Independent Work</li> <li>● Guided review</li> </ul>	<ul style="list-style-type: none"> <li>● Summer Work Assessment</li> </ul>	Textbook: <b><i>Precalculus</i></b> : Chapter 0 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>

<b>Subject/Course Title:</b> PreCalculus/Honors PreCalculus	<b>Unit Title:</b> Functions and Graphs (Unit 2)
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<b>Unit Overview</b>
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The purpose of this unit is to begin the study of functions that will continue throughout the year. These functions can be visualized using a graphing calculator, and their properties can be described using the notation and terminology that will be introduced in this unit. This will set the groundwork for all future exploration in pre-calculus.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b>Instructional Strategies</b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
7 Weeks	<b>CT Core Standards</b> <b>F.BF.1</b> <b>F.IF.7</b> <b>F.BF.4.b-d</b> A.SSE.4 A.CED.1	<ol style="list-style-type: none"> <li>1. What is a function and what are the multiple ways we can represent a function</li> <li>2. How can we link graphical transformations of functions to their algebraic representations?</li> <li>3. What is an inverse of a function?</li> <li>4. How do we use functions to model real-world situations?</li> </ol>	<ul style="list-style-type: none"> <li>• Teacher modeling of problem solving</li> <li>• Discovery/problem- based learning</li> <li>• Student led discussion</li> <li>• Integrate technology for discovery and practice</li> </ul>	<ul style="list-style-type: none"> <li>• Section Quizzes</li> <li>• Summative Unit Assessment on Functions</li> <li>• Enrichment portfolio (Honors)</li> </ul>	Textbook: <i>Precalculus</i> : Chapter 1 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>

<b>Subject/Course Title:</b> PreCalculus/Honors PreCalculus	<b>Unit Title:</b> Polynomial, Power, and Rational Functions (Unit 3)
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<b>Unit Overview</b>
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This unit includes a thorough study of the theory of polynomial equations. Students investigate algebraic methods for finding both real and complex number solutions of such equations and relate these methods to the graphical behavior of polynomial and rational functions. These methods will also be extended to exploring inequalities in one variable.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b>Instructional Strategies</b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
9 Weeks	<b><u>CT Core Standards</u></b> <b>A.APR.6</b> A.APR.7 <b>F.IF.7(d)</b> <b>N.CN.3</b> N.CN.8 <b>N.CN.9</b>	<ol style="list-style-type: none"> <li>Why is it important to find zeros of a polynomial function</li> <li>Why does every non-constant polynomial have a zero in the complex number system?</li> <li>What is an asymptote, why do they occur, and what are their effects graphically on a rational function?</li> </ol>	<ul style="list-style-type: none"> <li>Teacher modeling of problem solving</li> <li>Discovery/problem- based learning</li> <li>Student led discussion</li> <li>Integrate technology for discovery and practice</li> </ul>	<ul style="list-style-type: none"> <li>Section quizzes</li> <li>Rational Functions quiz</li> <li>Summative Unit Test on Polynomials</li> <li>Enrichment portfolio (Honors)</li> </ul>	Textbook: <i>Precalculus</i> : Chapter 2 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>

<b>Subject/Course Title:</b> PreCalculus/Honors PreCalculus	<b>Unit Title:</b> Exponential and Logarithmic Functions (Unit 4)
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### Unit Overview

In this unit, students synthesize and generalize what they have learned about a variety of function families. They extend the domain of exponential functions to the entire real line and then extend their work with these functions to include solving exponential equations with logarithms. They investigate the inverse relationship between exponential and logarithmic functions. They explore the effects of transformations on graphs of exponential and logarithmic functions. They notice that the transformations on a graph of a logarithmic function relate to the logarithmic properties. Students identify appropriate types of functions to model a situation.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b>Instructional Strategies</b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
6 Weeks	<b>CT Core Standards</b> A.SSE.1 (b) <b>A.SSE.4</b> <b>A.CED.1</b> A.CED.2 <b>F.IF.7e</b> F.IF.8 F.BF.1 F.BF.3 F.BF.4a-c <b>F-BF-5</b> <b>F.LE.4</b> <b>F.LE.5</b> A.REI.11b	<ol style="list-style-type: none"> <li>How are exponential and logarithmic models used along with polynomial models to solve real world situations?</li> <li>What are the algebraic and graphical connections between exponential and logarithmic functions?</li> </ol>	<ul style="list-style-type: none"> <li>Teacher modeling of problem solving</li> <li>Discovery/problem- based learning</li> <li>Student led discussion</li> <li>Integrate technology for discovery and practice</li> </ul>	<ul style="list-style-type: none"> <li>Section Quizzes</li> <li>Summative Unit Test on exponential and logarithmic functions</li> <li>Enrichment portfolio (Honors)</li> </ul>	Textbook: <i>Precalculus</i> : Chapter 3 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>

<b>Subject/Course Title:</b> PreCalculus/Honors PreCalculus	<b>Unit Title:</b> Trigonometric Functions (Unit 5)
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<b>Unit Overview</b>
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This unit serves as an introduction to the study of trigonometry. It begins by looking at the different forms of angular measure, followed by a thorough investigation of right triangle trigonometry, then extending this concept to the circular functions. Graphs of trigonometric functions are explored by “unwrapping” the unit circle, and the unit concludes with a study of the inverse trigonometric functions and real-world applications.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b>Instructional Strategies</b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
6 Weeks	<b><i>CT Core Standards</i></b> <b>F.TF.3</b> <b>F.TF.4</b> <b>F.TF.6</b> F.TF.7	<ol style="list-style-type: none"> <li>How are geometry and trigonometry related?</li> <li>How is the unit circle used to describe trigonometric functions?</li> <li>What is the relationship between radians and degrees?</li> <li>How are the graphs of trigonometric functions related to each other?</li> <li>How is trigonometry used in real life applications?</li> </ol>	<ul style="list-style-type: none"> <li>Teacher modeling of problem solving</li> <li>Discovery/problem- based learning</li> <li>Student led discussion</li> <li>Integrate technology for discovery and practice</li> </ul>	<ul style="list-style-type: none"> <li>Section Quizzes</li> <li>Summative Unit Test on Trigonometry</li> <li>Enrichment Portfolio (Honors)</li> </ul>	Textbook: <b><i>Precalculus</i></b> : Chapter 4 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>

<b>Subject/Course Title:</b> PreCalculus/Honors PreCalculus	<b>Unit Title:</b> Analytic Trigonometry (Unit 6)
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<b>Unit Overview</b>
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The goal of this unit is to shift from the more computational side of trigonometry to study the connections among the trigonometric functions themselves. There is a heightened emphasis on theory and proof, exploring the many properties of these special functions, setting the groundwork for further study in calculus.

<b>Time Frame</b>	<b>Priority Standards</b>	<b>Essential Questions</b>	<b>Instructional Strategies</b>	<b>Assessments (Note Writing Tasks and Performance Tasks)</b>	<b>Key Resources/Texts</b>
6 Weeks	<b>CT Core Standards</b> <b>F.TF.9</b> G.SRT.9 G.SRT.10 <b>G.SRT.11</b>	<ol style="list-style-type: none"> <li>1. What is an identity?</li> <li>2. How can we use identities to simplify trigonometric expressions, solve trigonometric equations, and prove other identities?</li> <li>3. When is it necessary to use the Law of Sines versus the Law of Cosines to solve a triangle?</li> </ol>	<ul style="list-style-type: none"> <li>• Teacher modeling of problem solving</li> <li>• Discovery/problem- based learning</li> <li>• Student led discussion</li> <li>• Integrate technology for discovery and practice</li> </ul>	<ul style="list-style-type: none"> <li>• Section Quizzes</li> <li>• Summative Unit Test on Analytic Trigonometry</li> <li>• Enrichment Portfolio (Honors)</li> </ul>	Textbook: <i>Precalculus</i> : Chapter 5 (Pearson Copyright 2007)  <a href="#">Khan Academy</a> <a href="#">Coolmath.com</a> <a href="#">Purplemath.com</a>