

## Mathematics – Trigonometry/Pre-calculus

<b>Building Relationships among Complex Numbers, Vectors, and Matrices</b>	<b>Analysis and Synthesis of Functions</b>
<ul style="list-style-type: none"> <li>• Represent abstract situations involving vectors symbolically.</li> </ul>	<ul style="list-style-type: none"> <li>• Write a function that describes a relationship between two quantities. (e.g., if <math>T(y)</math> is the temperature in the atmosphere as a function of height, and <math>h(t)</math> is the height of a weather balloon as a function of time, then <math>T(h(t))</math> is the temperature at the location of the weather balloon as a function of time.)</li> </ul>
<b>Trigonometric and Inverse Trigonometric Functions of Real Numbers</b>	<b>Derivations in Analytic Geometry</b>
<ul style="list-style-type: none"> <li>• Make sense of the symmetry, periodicity, and special values of trigonometric functions using the unit circle.</li> <li>• Prove trigonometric identities and apply them problem solving situations.</li> </ul>	<ul style="list-style-type: none"> <li>• Make sense of the derivations of the equations of an ellipse and a hyperbola.</li> </ul>
<b>Modeling with Probability</b>	<b>Series and Informal Limits</b>
<ul style="list-style-type: none"> <li>• Develop a probability distribution. (e.g., Find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.)</li> </ul>	<ul style="list-style-type: none"> <li>• Apply mathematical induction to prove summation formulas.</li> </ul>