

### Year at a Glance - Enhanced Math III

#### What Students Learn

Enhanced Math III is the second course in the accelerated math sequence that IUSD offers at the high school level and covers the remaining Math III standards that were not covered in Enhanced Math II, as well as the Precalculus standards. Building upon previous work with linear, exponential, quadratic, and absolute value functions, students will learn about new function families: polynomial, rational, radical, logarithmic, and trigonometric. Within each of these function families, students will identify and interpret key features, graph transformations of each parent function, solve equations, and rewrite expressions in equivalent forms. Students recognize solving equations as a process of reasoning and build on their fluency in solving linear and quadratic equations to expand their repertoire of strategies to include solving power, radical, polynomial, exponential, logarithmic, rational, and trigonometric equations. Students will extend their study of trigonometry to include the unit circle, trigonometric functions, reciprocal and inverse trigonometric functions, and trigonometric identities. Students will work with parametric and polar curves, vectors, sequences and series. In addition, students will deepen and extend their understanding in each of these areas through study of advanced related topics and application to more complex problem-solving situations, in order to prepare students for advanced mathematics at an accelerated pace. The topics covered in Enhanced Math III will prepare students for Calculus.

Unit Titles (Time Frame*)	Overview of Depth of Mastery
1. Functions and their Inverses (3 weeks)	<p><b>Enhanced Math III students work towards mastery:</b></p> <ul style="list-style-type: none"> <li>Understanding and applying the unit circle</li> <li>Identifying and interpreting key features of functions</li> <li>Solving equations using inverse operations</li> <li>Understanding inverse relationships</li> <li>Graphing transformations of functions</li> </ul> <p><i>Function families include: linear and exponential (introduced in Math I), quadratic and absolute value (introduced in Math II), polynomial, rational, radical, logarithmic, trigonometric (introduced in Math III)</i></p> <p><b>Enhanced Math III students work towards fluency:</b></p> <ul style="list-style-type: none"> <li>Solving polynomial, exponential, and logarithmic equations</li> <li>Graphing and identifying key features of trigonometric functions</li> <li>Solving trigonometric equations</li> <li>Understanding and applying magnitude and direction in the context of vectors, polar coordinates, and parametric equations</li> <li>Exploring and describing the behavior of functions</li> <li>Modeling with functions</li> </ul>
2. Trigonometric Functions (5 weeks)	
3. Exponential and Logarithmic Functions (5 weeks)	
4. Polynomial Functions (4 weeks)	
5. Trigonometric Inverses and Identities (4 weeks)	
6. Rational Functions (4 weeks)	
7. The Polar Coordinate System (3 weeks)	
8. Vectors and Parametric Equations (3 weeks)	
9. Sequences and Series (3 weeks)	
10. Foundations of Calculus: Limits and Derivatives (2 weeks)	

\* All time frames are approximations based on student progress and understanding.