

DeRuyter Central School District

Pre-Calculus – Concurrent Enrollment

21 Benchmarks

- **Standard 1: Understand, apply, and communicate strategies and reasoning in the problem solving process**
 - PC.1.1 Using the Fundamental Trigonometric Identities
 - PC.1.2 Verifying Trigonometric Identities

- **Standard 2: Understand, apply, and communicate the properties of numbers and operations**
 - PC.2.1 Properties of Logarithms
 - Change of Base Formula
 - Product, Quotient, and Power Rules
 - PC.2.2 Vectors in the Plane
 - Adding, Subtracting, Multiplying, Dividing Vectors
 - Unit Vectors
 - PC 2.3 Vectors and Dot Products
 - PC 2.4 Trigonometric Form of a Complex Number

- **Standard 3: Understand, apply, and communicate the concepts of geometry**
 - PC 3.1 Quadratic Functions
 - Identify axis of symmetry and vertex
 - Shifts and Reflections of Parabolas
 - PC 3.2 Polynomial Functions of Higher Degree
 - Utilize the Leading Coefficient Test to determine End Behavior
 - Locate zeros of polynomials graphically
 - Determine Maximums and Minimums
 - PC 3.3 Graphs of Rational Functions
 - Graph Polynomial Functions by hand utilizing the asymptotes, domains and intercepts
 - PC 3.4 Exponential Functions and Their Graphs
 - PC 3.5 Logarithmic Functions and Their Graphs

- **Standard 4: Understand, apply, and communicate the concepts of measurement**
 - PC 4.1 Sum and Difference Trigonometric Formulas
 - PC 4.2 Multiple-Angle and Product-Sum Formulas
 - PC 4.3 Law of Sines
 - Ambiguous Case
 - PC 4.4 Law of Cosines

- **Standard 5: Understand, apply, and communicate the concepts of statistics and data analysis.**
 - PC 5.1 Rational Functions and Asymptotes

- Find domains and asymptotes of polynomial functions
- PC 5.2 Exponential and Logarithmic Models
 - Utilize regression capabilities of calculators to find appropriate model

➤ **Standard 6: Understand, apply, and communicate the concepts of probability.**

➤ **Standard 7: Understand, apply, and communicate the concepts of algebra.**

PC 7.1 Real Zeros of Polynomial Functions

- Long Division of Polynomials
- Synthetic Division of Polynomials
- Rational Zero Test

PC 7.2 The Fundamental Theorem of Algebra

- Find Real and Complex Zeros of Polynomial Functions
- Given the zeros, find polynomial functions with real coefficients

PC 7.3 Solving Exponential and Logarithmic Equations

- Utilize one-to-one properties and inverse properties

PC 7.4 Solving Trigonometric Equations