Pre-Calculus with Trigonometry

The following learning targets represent the major concepts studied and assessed in this course.

Unit 1
Functions

- Describe functions using proper notation
- State the domain and range of a function using interval notation
- Evaluate, graph, write and apply equations of piecewise functions
- Finding and verifying inverses

Unit 2
Rational Functions

- Introduction to rational functions
- Determine discontinuities from rational equations (vertical asymptotes and holes)
- Horizontal and slant asymptotes
- Graphing rational functions using holes, vertical and horizontal asymptotes, and intercepts
- Decomposition by partial fractions

Unit 3
Exponential and Logarithmic Functions

- Graphing exponential functions
- Introduction to logarithms
- Solving exponential and logarithmic functions
- Properties of logarithms

Unit 4
Matrices and Conic Sections

- Conic sections - circles
- Identify conic sections from general and standard form
- Introduction to ellipses
- Introduction to matrices

Unit 5
Solving Problems with Triangles

- Right triangle trigonometry
- Law of sines and ambiguous case
- Law of cosines

Unit 6
Trigonometry as a Real Valued Function

- Angle vocabulary
- Coterminal angles, reference angles, and radians
- Arc length, sectors, angle rotations, and revolution
- The unit circle
- Evaluating trigonometric functions with the unit circle
- Inverse trigonometric functions and the unit circle

Unit 7
Graphing Trigonometric Functions

- Introduction to graphing
- Sketching graphs of sine and cosine - amplitude, period, vertical shift and phase shift
- Application of sine and cosine graphs
- Graphing secant, cosecant, tangent, and cotangent

Unit 8
Trigonometric Identities

- Introduction to trig identities
- Verify trigonometric identities
- Sum and difference identity