

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MTH 167 Credits: 3

Course Title: PreCalculus with Trigonometry

Course Description

Presents topics in power, polynomial, rational, exponential, and logarithmic functions, systems of equations, trigonometry, and trigonometric applications, including Law of Sines and Cosines. Provides an introduction to conics. Credit will not be awarded for both MTH 167 and 161/162 or equivalent. This

- x Identify and graph exponential and logarithmic functions and their transformations.
- x Use properties of logarithms to simplify and expand logarithmic expressions.
- x Convert between exponential and logarithmic forms and demonstrate an understanding of the relationship between the two forms.
- x Solve exponential and logarithmic equations using one-to-one and inverse properties.
- x Solve application problems involving exponential and logarithmic functions.

Systems of Equations and Inequalities

- x Solve three variable linear systems of equations using the Gaussian elimination method.

Trigonometric Functions

- x Identify angles in standard form in both degree and radian format and convert from one to the other.
- x Find the arc length.
- x Find the value of trigonometric functions of common angles without a calculator using the unit circle and right triangle trigonometry.
- x Use reference angles to evaluate trig functions.
- x Find the value of trigonometric functions of angles using a calculator.
- x Use fundamental trigonometric identities to simplify trigonometric expressions.
- x Graph the six trigonometric functions using the amplitude, period, phase and vertical shifts.
- x Use trig functions to model applications in the life and natural sciences.

Analytic Trigonometry

- x Use the fundamental, quotient, Pythagorean, co-function, and even/odd identities to verify trigonometric identities.
- x Use the sum and difference, double angle, half-angle formulas to evaluate the exact values of trigonometric expressions.
- x Determine exact values of expressions, including composite expressions, involving inverse trigonometric functions.
- x Solve trigonometric equations over restricted and non-restricted domains.

Applications of Trigonometry

- x Solve right triangles and applications involving right triangles.
- x Use the Law of Sines and Cosines to solve obli9 (al)2.6 (s)-2 n-alf

