Sequoia Union High School District
Math Content Standards

Pre Calculus

1. Students will know the six trigonometric and circular functions relationship to the right triangle and unit circle

a. The student will sketch positive and negative angles of any magnitude in standard position; indicate and calculate coterminal and reference angle.
b. The student will know the appropriate triangular ratios for each trigonometric function and know the unit of measurement for the argument (degrees).
c. The student will know the connection between circular function and trigonometric function and understand the difference in arguments (radians versus degrees).
d. convert between degrees and radians.

2. Students will be able to solve any triangle.

a. The student will solve right triangle problems that arise in every day context.
b. The student will solve any triangle using Law of Sines and Law of Cosines.
c. The student will calculate areas using the appropriate formula (including 1/2 ab (sin C), Heron, etc.)

3. Students will know the fundamental properties of the trigonometric functions

a. The student will understand the derivation of the trigonometric properties: (reciprocal, quotient, pythagorean, odd-even, cofunction, composite argument, double & half argument, sum and product)
b. The student will use the fundamental properties of trigonometry to verify trigonometric identities.
c. The student will compute exact trigonometric values of angles related to special right triangles using the fundamental properties of trigonometry.
d. The student will apply the fundamental properties of trigonometry in solving complex trigonometric equations.
e. The student will understand the relationship between a trigonometric function and its inverse function.

4. Students will graph trigonometric and circular functions and their inverses.

a. The student will know how amplitude, period, phase shift and vertical shift affect the structure of trigonometric graphs.
b. The student will know the limitations on the domain and range of trigonometric functions and their inverses.
c. The student will recognize the connection between asymptotes and arguments for which trigonometric functions have no value.
d. The student will know how to graph complex trigonometric functions using composition of ordinates.
e. The student will create a graph from situations in everyday context that are sinusoidal in nature and predict conclusions.

5. Students will understand the relationship between vectors, complex numbers, and polar coordinates and their connection to trigonometry

a. The student will know how to add vectors and compute vector magnitude.
b. The student will express a vector as a sum of the horizontal and vertical unit vectors.
c. The student will transform polar equations to cartesian equations and vice-versa.
d. The student will express a complex number in polar form.
e. The student will know De Moivre's theorem.

Adopted 5/02