

Trigonometry Mathematics

Content Standards

Students will...

- 1.0** Understand the notion of angle and how to measure it, in both degrees and radians. Convert between degrees and radians.
 - 2.0** Know the definition of sine and cosine as y- and x-coordinates of points on the unit circle; graph the sine and cosine functions.
 - 3.0** Prove the identity $\sin^2 x + \cos^2 x = 1$ using the Pythagorean Theorem; prove related Pythagorean identities.
 - 4.0** Graph $A \sin(Bt+C)$ or $A \cos(Bt+C)$ using amplitude, frequency, period, and phase shift.
 - 5.0** Know and graph tangent and cotangent functions.
 - 6.0** Know and graph secant and cosecant functions.
 - 7.0** Know that the tangent of the angle a line makes with the x-axis is equal to the slope.
 - 8.0** Know and graph the inverse trigonometric functions.
 - 9.0** Compute without a calculator the values of the trigonometric functions and inverse trigonometric functions at various standard points.
 - 10.0** Prove addition formulas for sines and cosines and use those formulas to prove and/or simplify other trigonometric identities. (ex. $\sin 75^\circ$)
 - 11.0** Use half-angle and double-angle formulas for sines and cosines to prove and/or simplify other trigonometric identities.
 - 12.0** Solve right triangles using trigonometry.
 - 13.0** Use Law of Sines and Law of Cosines to solve problems.
 - 14.0** Determine the area of a triangle, given one angle and the two adjacent sides.
 - 15.0** Convert between polar coordinates and rectangular coordinates.
 - 16.0** Represent equation given in rectangular coordinates in terms of polar coordinates.
 - 17.0** Represent a complex number in polar form and multiply complex numbers in polar form.
 - 18.0** Use DeMoivre's theorem to give nth roots of a complex number given in polar form.
- Use trigonometry in a variety of applications and word problems.