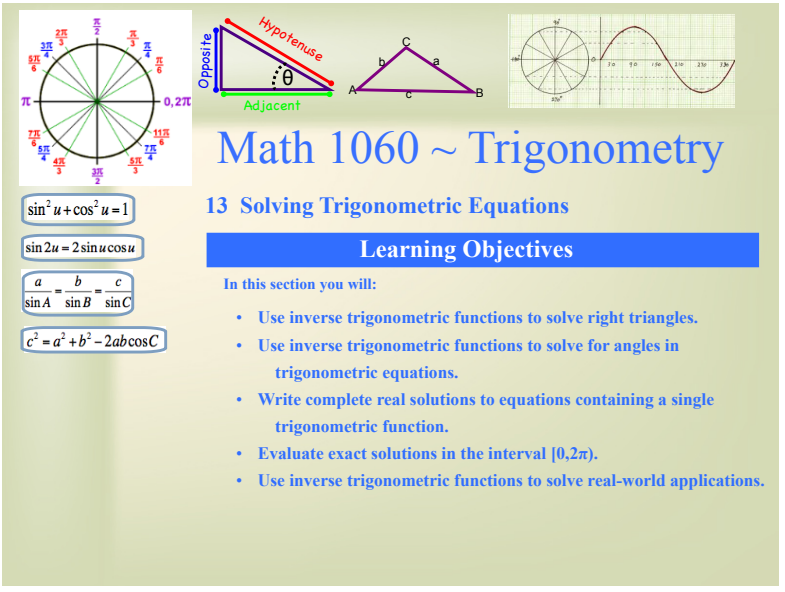

The inverse functions allow us to calculate angles in a right triangle, given two of the sides.

Ex 1: Determine the acute angles in a 3-4-5 right triangle.

Ex 2: If a 50-meter rope is attached to the top of a 20-meter pole for a tight-rope event, what angle does the rope make with the ground?

We can also solve trigonometric equations for angles in radians.

Remember: $x = \sin^{-1}(a)$ returns a single, principal value and $\sin x = a$ will have an infinite number of solutions, if defined.

Sample: Solve for x.

$x = \sin^{-1}\left(-\frac{1}{2}\right)$ $\sin x = -\frac{1}{2}$

Ex 3: Solve these for x, where x is in radians. State the solution on the interval $[0,2\pi)$ and then state the general solution for all angles which provide a solution to the equation.

a) $\sqrt{2}\sin x - 1 = 0$ b) $\sec^2 x = 4$

Ex 4: State the general solution for each of these.

a) $\tan^2 x - 3 = 1$ b) $\cos(2x) = -\frac{\sqrt{3}}{2}$

Ex 5: State all radian values where the line $y = 2$ intersects with the function $y = \sec x$.