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 \( x \).

\[ x = \sin^{-1}\left(-\frac{1}{2}\right) \quad \text{sin} x = \frac{1}{2} \]

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 \( y = \sec x \).