

Solving Sinusoidal Functions (Intro)

KNOW There are multiple solutions to a trig equation.	DO Can find the solutions to a trig equation in a given domain.	UNDERSTAND <i>Inverse:</i> Sine and cosine are not 1-to-1 so the domain must be restricted. Restrictions come so that they take on all values of the range once.
Vocab & Notation <ul style="list-style-type: none"> Inverse trig: $\sin^{-1}(\quad)$; $\arcsin(\quad)$ 		

If $x^2 = 8$ what is x ?

So, when we ask: if $\cos \theta = 0.8$ or if $\sin \varphi = 0.8$ or if $\tan \beta$, then what is θ , φ and β ? We have the same problem.

When we use the inverse we are only finding one solution. Recognize that there will almost always be a second solution (sometimes three other solutions if we can be positive or negative)

Example: Solve for x

$$4 \sin^2 \left(\frac{\pi}{2} (x - 1) \right) = 1$$

Example: Solve for x

$$\tan^2 \left(2 \left(x + \frac{\pi}{3} \right) \right) = 5 \tan \left(2 \left(x + \frac{\pi}{3} \right) \right)$$



