

Solving Trigonometric Equations Using Inverses

	Domain	Range
Function $y = \cos \theta$	$0 \leq \theta \leq \pi$	$-1 \leq y \leq 1$
Inverse Function $\theta = \cos^{-1} x$	$-1 \leq x \leq 1$	$0 \leq \theta \leq \pi$
Function $y = \sin \theta$	$-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$	$-1 \leq y \leq 1$
Inverse Function $\theta = \sin^{-1} x$	$-1 \leq x \leq 1$	$-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$
Function $y = \tan \theta$	$-\frac{\pi}{2} < \theta < \frac{\pi}{2}$	y is any real number
Inverse Function $\theta = \tan^{-1} x$	x is any real number	$-\frac{\pi}{2} < \theta < \frac{\pi}{2}$

EX: What is $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right)$ in degrees?

EX: What values of θ ($-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$) satisfy the equation $3\tan\theta - 2 = \tan\theta$?

EX: What are the values for θ that satisfy the equation $5\sin^2\theta - \sin\theta = 0$ for $(0 \leq \theta \leq 2\pi)$?