

Find the exact value without a calculator.

A) $\sin(\cos^{-1}(1/2))$

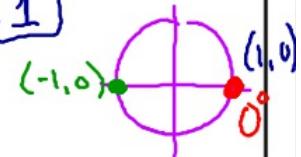
$$\sin(\underbrace{\cos^{-1}(\frac{1}{2})}_{\text{what angle } \frac{y}{x} = \frac{0}{1}})$$

$$\sin(60^\circ) = \boxed{\frac{\sqrt{3}}{2}}$$

B) $\cos(\tan^{-1}(0))$

$$\cos(\underbrace{\tan^{-1}(0)}_{\text{what angle } \frac{y}{x} = \frac{0}{1}})$$

$$\cos(0^\circ) = \boxed{1}$$



C) $\tan(\sin^{-1}\left(\frac{\sqrt{2}}{2}\right))$

$$\tan(45^\circ) = \boxed{1}$$

D) $\sin(\tan^{-1}(-\sqrt{3}))$

$$\frac{\sqrt{3}}{1} = \frac{\sqrt{3}/2}{1/2} = \frac{y}{x}$$

$$\sin(-60^\circ) = -\frac{\sqrt{3}}{2}$$

E) $\cos^{-1}\left(\sin\left(\frac{\pi}{4}\right)\right)$

$$\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = 45^\circ = \frac{\pi}{4} \text{ rad}$$

F) $\sin^{-1}\left(\cos\left(\frac{\pi}{6}\right)\right)$

$$\sin^{-1}(\cos 30^\circ)$$

$$\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = 60^\circ$$

$$1. \quad \cos\left(\sin^{-1}\frac{1}{\sqrt{2}}\right) =$$

$$2. \quad \sin\left(\tan^{-1}\left(\frac{\sqrt{2}}{2}\right)\right) =$$

$$3. \quad \cot\left(\cos^{-1}\frac{-1}{4}\right) =$$

$$4. \quad \csc\left(\sin^{-1}\frac{-2}{3}\right) =$$

PRE-CALCULUS: by Finney, Demana, Watt and Kennedy
Solving Trigonometric Equations

What you'll Learn About

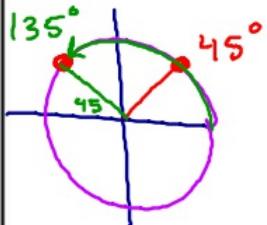
$[0, 360^\circ]$

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Solve each trigonometric equation for θ on the interval $[0, 2\pi]$. Then give a formula for all possible angles that could be a solution of the equation.

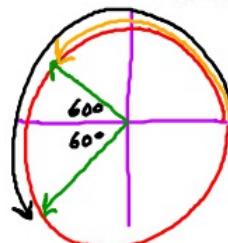
A) $\sin \theta = \frac{\sqrt{2}}{2}$

Find the angle(s)
 when $y = \frac{\sqrt{2}}{2}$
 $\theta = 45^\circ$
 $\theta = 180^\circ - 45^\circ = 135^\circ$



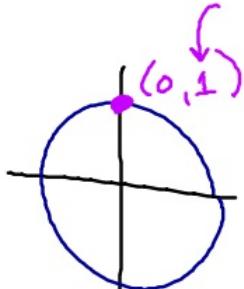
B) $\cos \theta = -\frac{1}{2}$

$\theta = 180^\circ - 60^\circ = 120^\circ$
 $\theta = 180^\circ + 60^\circ = 240^\circ$

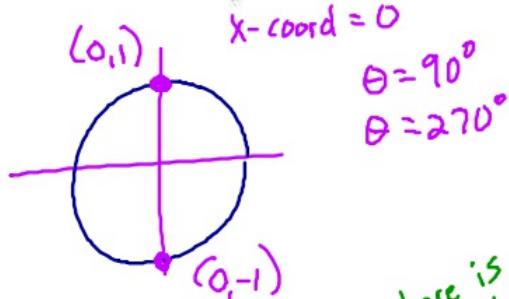


C) $\sin \theta = 1$

$y^{\text{coord}} = 1$
 $\theta = 90^\circ$

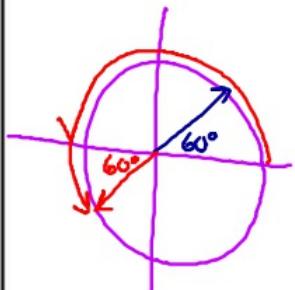


D) $\cos \theta = 0$



E) $\tan \theta = \sqrt{3}$

$\theta = 60^\circ$
 Where else is tangent pos
 $\theta = 180^\circ + 60^\circ = 240^\circ$



F) $\tan \theta = -1$
 Where is $\tan \theta < 0$
 $\theta = 180^\circ - 45^\circ = 135^\circ$
 $\theta = 360^\circ - 45^\circ = 315^\circ$

