

Finding the measure of an angle_1

Sunday, November 30, 2025 12:30 PM

Find the measure of the positive acute angle θ which satisfies each of the following :

1 $\sin \theta = 0.6438$

2 $\cos \theta = 0.4517$

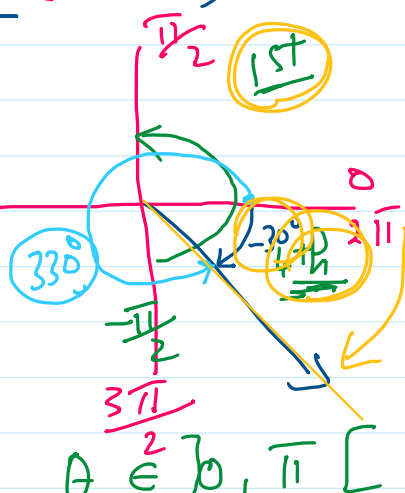
$\theta = \cos^{-1}(0.4517)$

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$\theta = \sin^{-1} 0.6438 = \checkmark$

$\sin^{-1}(-\frac{1}{2}) = -30^\circ$
 $\cos^{-1}(\frac{1}{2}) = 60^\circ$

i.e. (unique value $\in [-\frac{\pi}{2}, \frac{\pi}{2}]$)
 i.e. (unique value $\in [0, \pi]$)



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$\sin \theta = \frac{1}{2}$ $\theta = -30$ $\theta = ??$

$\theta \in]0, \pi [$

$\theta = -30$ $\theta = ??$ $\theta \in]-\frac{\pi}{2}, \frac{\pi}{2}[$

$\theta = 330$ $\theta = -30$ $\theta = ??$ $\theta \in]0, 2\pi [$

1st 2nd 3rd 4th
 $180 - \theta \in 150$
 $180 + \theta \in 210$

$\theta = 210^\circ \& 330^\circ$

If $0^\circ < \theta < 360^\circ$ find θ which satisfies each of the following :

1 $\cos \theta = 0.8177$

2 $\cot \theta = -8.6421$

$\cot \theta = \frac{1}{\tan \theta}$

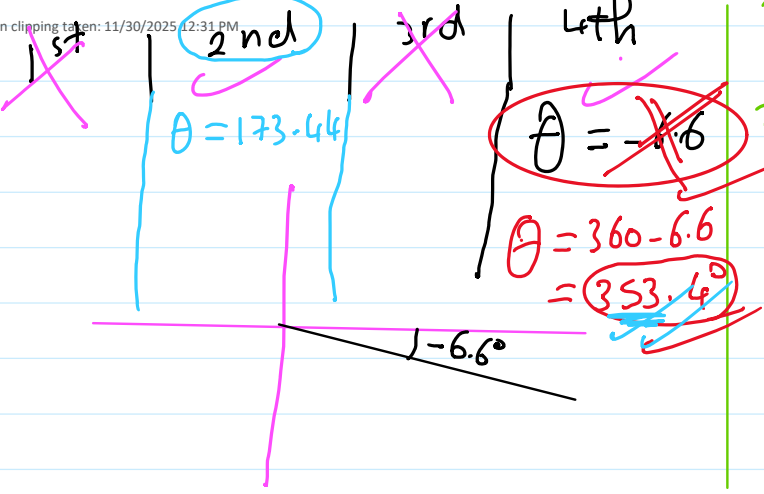
$\tan \theta = \frac{1}{-8.6421}$

$\tan \theta = -0.11571$

$\theta = \tan^{-1}(\text{Ans})$

$\theta = -6.6^\circ$

stop



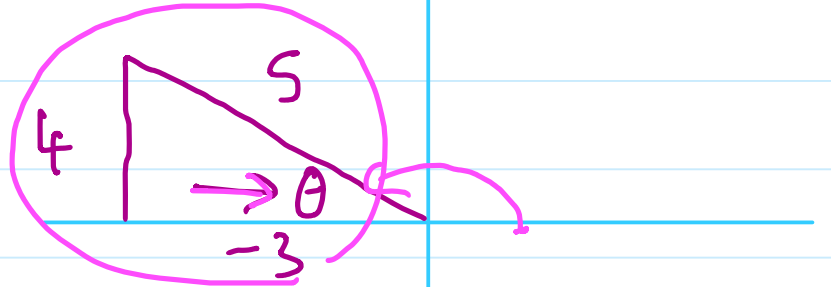
Finding the measure of an angle_2

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If the terminal side of the positive directed angle of measure θ in its standard position intersects the unit circle at the point $B\left(-\frac{3}{5}, \frac{4}{5}\right)$, find θ where $0^\circ < \theta < 360^\circ$

$\cos \theta = -\frac{3}{5}$
 $\sin \theta = \frac{4}{5}$

2nd
 3rd
 1st
 2nd



$$\theta = \sin^{-1} \frac{4}{5}$$

$$\theta = 53.13^\circ$$

$$53^\circ 7' 48''$$

$$180 - \theta$$

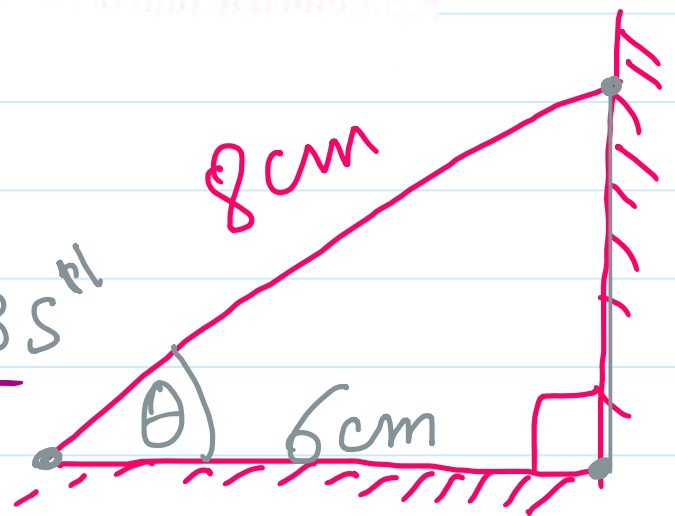
$$180 - 53.13$$

$$= 126^\circ 52' 12''$$

A ladder of length 8 m. rests on a vertical wall and a horizontal ground. If the height of the ladder on the ground surface equals 6 m., find in radian the measure of the angle of inclination of the ladder on the ground.

$$\cos \theta = \frac{6}{8}$$

$$\theta = \cos^{-1} \frac{6}{8} = 41^\circ 24' 35''$$



$$\frac{x^\circ}{180^\circ} = \frac{\theta^{\text{rad}}}{\pi}$$

$$\frac{41^\circ 24' 35''}{180} \times \pi = \theta^{\text{rad}}$$

$$\therefore \theta^{\text{rad}} = 0.23 \pi$$

$$\theta^{\text{rad}} = 0.723^{\text{rad}}$$