

Non-Calculator

1. Find one positive and one negative angle coterminal to $\frac{7\pi}{5}$

$$\frac{7\pi}{5} + \frac{10\pi}{5} = \boxed{\frac{17\pi}{5}} \quad \frac{7\pi}{5} - \frac{10\pi}{5} = \boxed{-\frac{3\pi}{5}}$$

2. Evaluate the following.

a. $\sin 150^\circ = \boxed{\frac{1}{2}}$
 II
 30°

b. $\cos 240^\circ = \boxed{-\frac{1}{2}}$
 60°
 III

c. $\tan 90^\circ = \frac{1}{0} = \boxed{\text{undef.}}$
 (0,1)

d. $\csc \frac{7\pi}{4} = \boxed{-\sqrt{2}}$
 IV
 45° $\sin: -\frac{\sqrt{2}}{2}$

e. $\sec\left(-\frac{\pi}{3}\right) = \boxed{2}$
 60°
 IV $\cos: \frac{1}{2}$

d. $\cot \pi = \frac{-1}{0} = \boxed{\text{undef.}}$
 (-1,0)

3. Evaluate the following. Give angle measures as degrees.

a. $\arcsin\left(\frac{\sqrt{3}}{2}\right) = \boxed{60^\circ}$
 angle with a sin of $\frac{\sqrt{3}}{2}$
 X |
 X |

b. $\arccos\left(-\frac{\sqrt{2}}{2}\right) = \boxed{135^\circ}$
 angle w a cos of $-\frac{\sqrt{2}}{2}$
 X | X
 45° ref
 II

c. $\arctan 0 = \boxed{0^\circ}$
 angle with a tan of 0
 X | P (0,1)
 X | (1,0)
 (0,-1)

d. $\sin\left(\arccos\left(\frac{-\sqrt{3}}{2}\right)\right) = \sin(150^\circ) = \boxed{\frac{1}{2}}$
 angle w a cos of $-\frac{\sqrt{3}}{2}$

e. $\cos(\arcsin(1)) = \cos(0^\circ) = \boxed{0}$
 angle with a sin of 1

4. Solve for θ .

a. $\sin \theta = -\frac{1}{2} \quad 0^\circ \leq \theta < 360^\circ$

$\boxed{\theta = 210^\circ, 330^\circ}$ $\text{ref } \angle = 30^\circ$
 Q: III, IV

b. $\cos \theta = -\frac{\sqrt{2}}{2} \quad 0^\circ \leq \theta < 360^\circ$

$\boxed{\theta = 135^\circ, 225^\circ}$ $\text{ref } \angle = 45^\circ$
 Q: II, III

c. $\tan \theta = -\sqrt{3} \quad 0 \leq \theta < 2\pi \rightarrow$ wants radian answers

$\boxed{\theta = \frac{2\pi}{3}, \frac{5\pi}{3}}$ $\text{ref } \angle = \pi/3$
 Q: II, IV

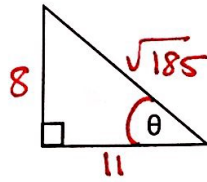
CALCULATOR.

5. Convert 5 radians to degrees. Round to 2 decimal places.

$$5 \cdot \frac{180^\circ}{\pi} = 286.48^\circ$$

6. If $\tan \theta = \frac{8}{11}$, find $\csc \theta$.

$$\csc \theta = \frac{\sqrt{185}}{8}$$



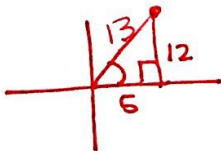
$$8^2 + 11^2 = h^2$$

$$185 = h^2$$

$$\sqrt{185} = h$$

5.37 - won't simplify

7. If θ in standard position contains the point (5, 12) find $\sin \theta$, $\cos \theta$, and $\tan \theta$.



$$\sin \theta = \frac{12}{13} \quad \cos \theta = \frac{5}{13} \quad \tan \theta = \frac{12}{5}$$

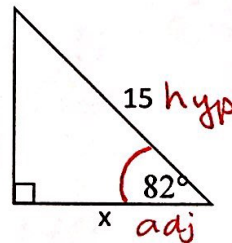
$$5^2 + 12^2 = h^2 \quad h^2 = 169 \quad h = \pm 13$$

8. Solve for x. Round your answer to 2 decimal places.

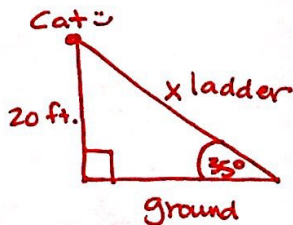
$$\cos 82^\circ = \frac{x}{15}$$

$$x = 2.09$$

$$15 \cos 82^\circ = x$$



9. Your cat is stuck in a tree, 20 feet off the ground. If you want to place your ladder so it makes a 35° angle with the ground, how long does your ladder need to be?



$$x \cdot \sin 35^\circ = \frac{20}{x} \cdot x$$

$$x \sin 35^\circ = 20$$

$$x = \frac{20}{\sin 35^\circ} = 34.87 \text{ ft}$$

10. Solve for θ . Round answers to 2 decimal places.

a. $\tan \theta = 2.539 \quad 0^\circ \leq \theta < 360^\circ$

$$\theta_{\text{calc}} = \tan^{-1}(2.539)$$

$$\theta_{\text{calc}} = 68.50^\circ$$



$$\theta = 68.50^\circ, 248.50^\circ$$

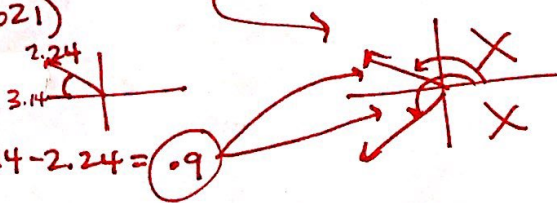
b. $\cos \theta = -0.621$

$0 \leq \theta < 2\pi$ - radians

$$\theta = \cos^{-1}(-0.621)$$

$$\theta_{\text{calc}} = 2.24$$

$$\text{ref } \angle = 3.14 - 2.24 = .9$$



$$\theta = 2.24, 4.04$$