

1. Convert to radian measure:

a. 45°

b. -90°

2. Convert to degree measure:

a. $\frac{3\pi}{4}$

b. $\frac{7\pi}{6}$

3. Determine what quadrant the angle is in if:

a. $\cos x > 0, \tan x < 0$

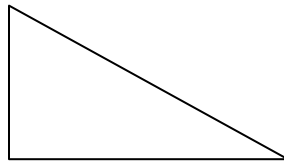
b. $\sin x < 0, \tan x < 0$

c. $\csc x > 0, \cos x < 0$

4. Find each of the remaining trig functions if $\sin \theta = \frac{1}{3}, \frac{\pi}{2} < \theta < \pi$.

5. Find all trig functions represented by the triangle formed from the point $(-3, -1)$

6. Label the triangle appropriately and find all angles and sides if: $a = 7, \beta = 50^\circ$.



7. Find an angle coterminal with

(a). 105°

(b) -255°

8. a. True or false: $y = \sin x$ can never have a value bigger than 1. _____

b. In which quadrants is $\cos x$ positive? _____

c. Where are the asymptotes of $y = \tan x$? _____

d. What is the period of $y = \sin x$? _____

9. The maximum angle of elevation for a rescue ladder is 72 degrees. If the fire department's largest ladder is 100 feet, what is the maximum safe rescue height

10. Use the identity $\sin^2 x + \cos^2 x = 1$ to find $\cos x$ if $\sin x = \frac{1}{2}$ and x is in the second quadrant.

11. Find two angles coterminal with 60 degrees.
12. One hundred feet from the trunk of a tree on level ground, the angle of elevation of the top of the tree is 35 degrees. Estimate the height of the tree to the nearest foot.
13. Let $y = 2 \sin(2x + \pi)$.
- What is the amplitude?
 - What is the period?
 - What is the phase shift?
 - Draw **only one cycle** of this function. **Clearly label** the start and stop of the cycle

14. Evaluate:

a. $\sin(\cos^{-1} \frac{1}{2})$

b. $\tan(\tan^{-1} \frac{\pi}{5})$

c. $\sin^{-1}(1)$

15. Use identities only to find the values for $\cos x$ and $\tan x$ given that $\csc x = \frac{2\sqrt{3}}{3}$.

16. Put your answers on the line at the right.

a. What is the amplitude of $y = -3 \cos 5x$?

b. What is the domain of $y = \sin x$?

c. Where are the asymptotes for $y = \tan \theta$?

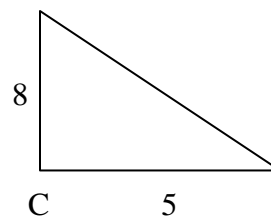
d. What is the range of $y = \cos \theta$?

e. In what quadrant is the angle $\frac{7\pi}{12}$?

e. What is the period of $y = -3 \sin 2x$?

17. Find $\sin^{-1} \left[\cos \frac{\pi}{3} \right]$ on $[0, 2\pi]$.

18. Find all sides and angles of the triangle:
The right angle is at C.



19. Use identities to show that $\sin \theta (\cot \theta + \tan \theta) = \sec \theta$.

20. Find $\sin 2x$ if $\sin x = -\frac{5}{13}$, $\pi < x < \frac{3\pi}{2}$.