

Some useful trigonometric relation that might help you to solve these problems. But remember you should know all of them in order to be prepared for your final exam.

$$\sin(30^\circ) = \frac{1}{2} \quad \sin(60^\circ) = \frac{\sqrt{3}}{2} \quad \sin(45^\circ) = \frac{\sqrt{2}}{2} \quad \sin(90^\circ) = 1 \quad (1)$$

$$\cos(\theta) = \sin\left(\frac{\pi}{2} - \theta\right) \quad \tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)} \quad \cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)} \quad (2)$$

$$\sec(\theta) = \frac{1}{\cos(\theta)} \quad \csc(\theta) = \frac{1}{\sin(\theta)} \quad \sin^2(\theta) + \cos^2(\theta) = 1 \quad (3)$$

$$\sin(\theta) = \sqrt{1 - \cos^2(\theta)} \quad \cos(\theta) = \sqrt{1 - \sin^2(\theta)} \quad (4)$$

1. Use the given function value and trigonometric identities to find the indicated trigonometric.

$$\sec(\theta) = 5 \quad (5)$$

$\cos(\theta)$

$\sin(\theta)$

$\tan(\theta)$

2. Find two solutions of each equation and give your answers in degree and in radians.

$$\csc(\theta) = \frac{2\sqrt{3}}{3} \quad (6)$$

3. Calculate the value of $\tan(\theta)$ and $\cos(\theta)$ for

$$\theta = 405^\circ \quad \text{and} \quad \theta = \frac{7\pi}{6} \quad (7)$$

4. Graph the function

$$y = 3 \cos(x + \pi) \quad (8)$$

5. By using trigonometric identities prove that

$$1 + (\tan \theta)^2 = (\sec \theta)^2 \quad (9)$$