

**Test Review: Intro to Trig**

Directions: SHOW ALL WORK unless indicated otherwise.

1. Conversions – Convert to either radians or degrees. Exact answers only!

a.)  $350^\circ$

b.)  $\frac{5\pi}{12}$

c.)  $-2/5$

d.)  $-400^\circ$

2. Find a positive and negative coterminal angle for the following.

a.)  $-20^\circ$

b.)  $\frac{5\pi}{12}$

3. Using the unit circle, find the exact value of the six trig functions of the given angles.

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

b.)  $\frac{-\pi}{2}$

c.)  $\frac{5\pi}{3}$

4. Find the value of the remaining trig functions using the given information.

a.)  $\sin(\theta) = \frac{3}{5}$ ,  $\theta$  in quadrant II

b.)  $\sec(\theta) = 2$ ,  $\sin(\theta) < 0$

c.)  $\tan \theta = \frac{-13}{12}$ ,  $\sin(\theta) < 0$

5. Evaluate the following expressions using the unit circle.

a.)  $\sin\left(-\frac{\pi}{3}\right)$

b.)  $\cos\left(-\frac{\pi}{4}\right)$

c.)  $\csc\left(-\frac{\pi}{4}\right)$

d.)  $\cot\left(-\frac{13\pi}{3}\right) =$

e.)  $\cos\left(\frac{\pi}{4}\right) + \sin\left(\frac{\pi}{3}\right)$

f.)  $4\cos(60^\circ) + 3\tan\left(\frac{\pi}{3}\right)$

g.)  $4\cos(30^\circ) + 3\tan\left(\frac{\pi}{6}\right)$

h.)  $\sec\left(-\frac{\pi}{3}\right) + \cot\left(-\frac{5\pi}{4}\right) =$

6. Find the value of the inverse trig functions.

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

b.)  $\cos^{-1} 1$

c.)  $\tan^{-1}\left(\sin -\frac{\pi}{2}\right)$

d.)  $\tan^{-1} -\sqrt{3}$

e.)  $\sec^{-1} 2$

f.)  $\sin^{-1}(\sec \pi)$

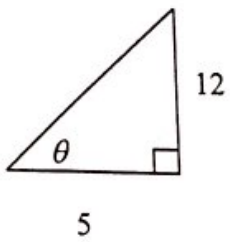
7. Evaluate each of the following. Draw a triangle to show your work.

a.  $\cos(\tan^{-1}\frac{3}{4})$

b.  $\sin(\sec^{-1}\frac{5}{4})$

Find the exact value of the six trigonometric function of the angle in the triangle.

8.



$$\sin \theta = \underline{\hspace{2cm}}$$

$$\csc \theta = \underline{\hspace{2cm}}$$

$$\cos \theta = \underline{\hspace{2cm}}$$

$$\sec \theta = \underline{\hspace{2cm}}$$

$$\tan \theta = \underline{\hspace{2cm}}$$

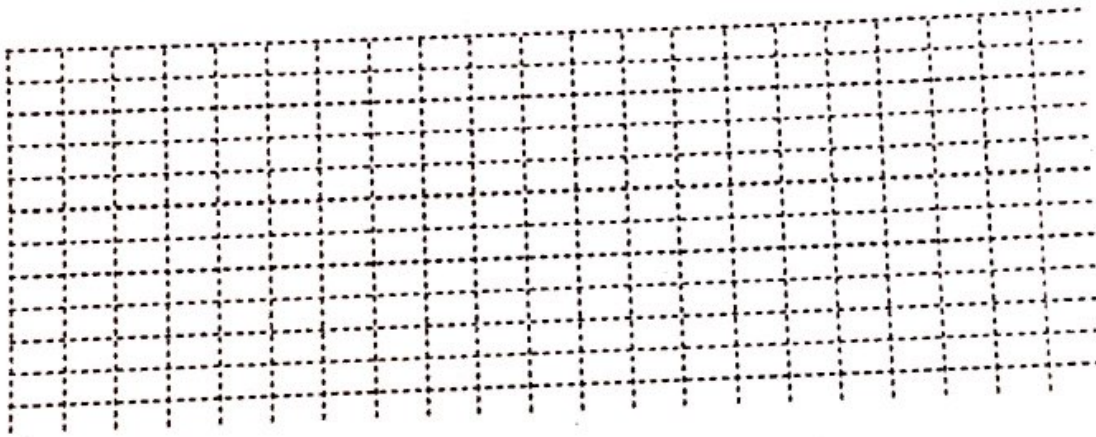
$$\cot \theta = \underline{\hspace{2cm}}$$

9. Find the arc length and sector area of the following. Find exact and approximate values to 2 decimal places.

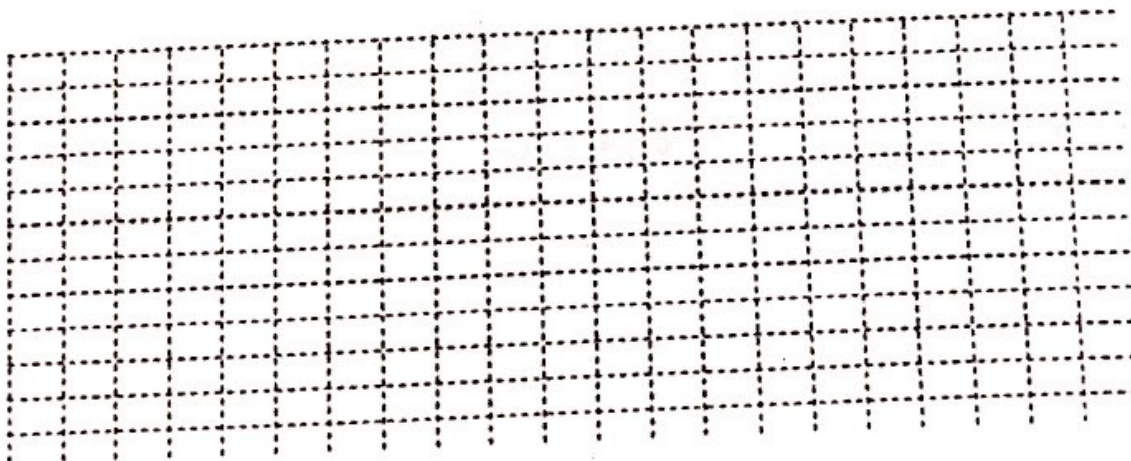
a.  $r = 9$  inches,  $\theta = 25^\circ$

b. diameter = 28 ft,  $\theta = 112^\circ$

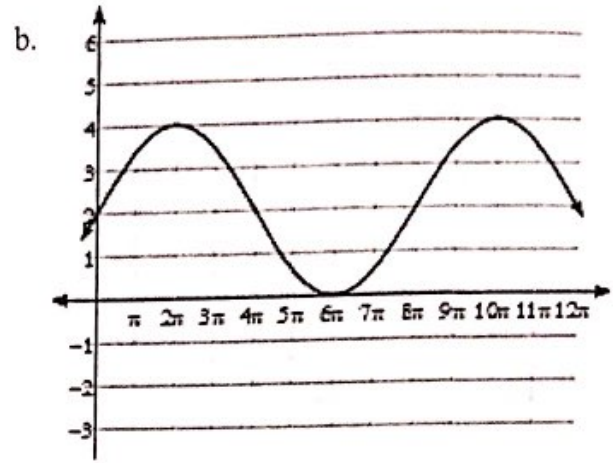
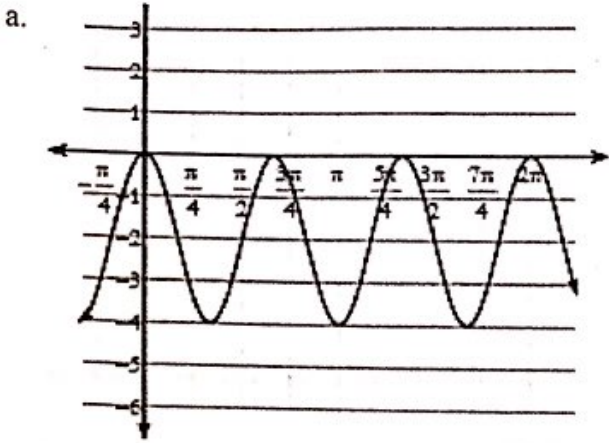
10. Sketch a graph of  $y = -2 \cos(4x) - 1$  without a calculator.



11. Sketch a graph of  $y = 4 \sin(2x - \pi)$  without a calculator.



12. Write a sine and cosine equation given the following graphs.



13. A Ferris Wheel is 5 feet off the ground. The wheel has a 13 foot radius, and makes a full revolution in 30 seconds. Write a sinusoidal function to model the height at any given time.

a. Assume at  $t = 0$ , the rider is at the lowest point.

b. Assume the rider is at the lowest point after 5 seconds.

14. Find the amplitude, period, frequency, and any shifts for the following functions.

a.  $y = -1/4\cos(5x) - 3$

b.  $y = 3\sin(4x - \pi)$

c.  $y = 1/2\sin(3x + \frac{\pi}{2}) + 1$

d.  $y = -5\cos(\frac{\theta}{4}) - 1$

e.  $y = 2\tan(3x)$

**\*Make sure you know all parent function graphs!\***