

Precalculus –Test Review Ch 4

1. Find an angle that is coterminal to $\theta = \frac{2\pi}{3}$.
2. Find an angle complementary to $\theta = \frac{\pi}{4}$.
3. Convert to degrees: $\frac{7\pi}{18}$
4. Convert to radians: 120°
5. The central angle θ of a circle with radius 5 inches intersects an arc of 12 inches. Find θ .
6. Joseph bought new 30 inch diameter tires for his car. The manufacturer says it is safe for these tires to turn at 50 revolutions per minute. How fast can the car travel safely?
7. Give the exact value (if defined) of each of the following:
 - a. $\sin\left(\frac{5\pi}{4}\right)$
 - b. $\cos\left(\frac{2\pi}{3}\right)$
 - c. $\csc\left(-\frac{7\pi}{6}\right)$
8. Determine the period and amplitude: $f(x) = -3\cos\left(\frac{x}{5} + \pi\right)$ period _____
amplitude _____
9. How many cycles does the function $f(x) = 4\sin(5x - \pi)$ complete between 0 and 2π ?
10. Describe the shifts of the graph: $f(x) = \cos\left(7x - \frac{7\pi}{3}\right) - 9$

11. Give the exact value (if defined) of the six trigonometric functions of

$$t = \frac{3\pi}{2}.$$

sin csc

cos sec

tan cot

12. Give the exact value (if defined) of the six trigonometric functions of

$$t = -\frac{5\pi}{6}.$$

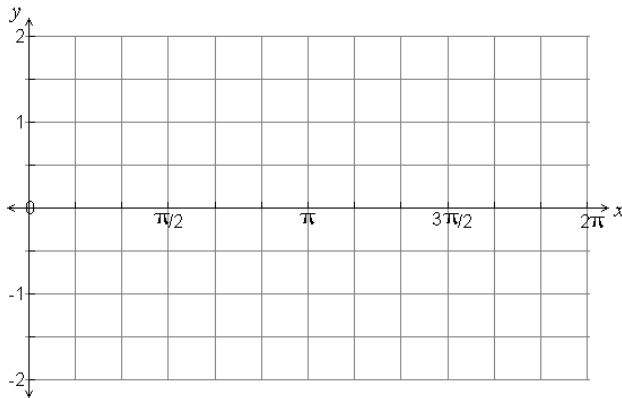
sin csc

cos sec

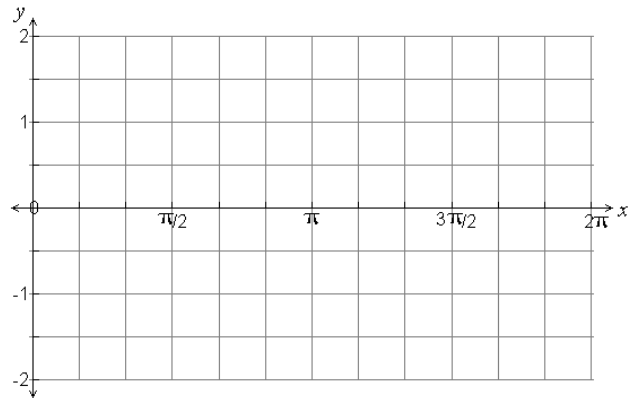
tan cot

13. Graph each of the following in the interval from 0 to 3π :

a) $f(x) = 3\sin\left(\frac{1}{2}x + \frac{\pi}{8}\right)$



b) $y = 2 - \cos 3x$



14. A passenger in an airplane flying at an altitude of 10 km sees two towns due east of the plane. The angles of depression to the towns are 28 degrees and 55 degrees. How far apart are the towns?



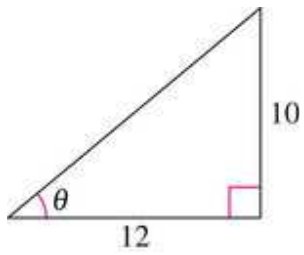
15. Find the exact value of each expression using the unit circle:

a) $\arcsin 0$ b) $\arcsin\left(-\frac{1}{2}\right)$ c) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

16. Find the exact values of :

a) $\sin \theta$

b) $\cot \theta$



17. The point $(3, -4)$ is on the terminal side of an angle in standard position. Determine the exact values of the six trig functions of the angle.