

Answers should be *exact* (and done *without a calculator*) on all problems marked with an *. When rounding, sides should be rounded to the nearest hundredth and ratios should have 4 decimal places.

*1. Determine the quadrant in which the terminal side of the angle lies:

a) $\theta = \frac{6\pi}{5}$

b) $\theta = 395^\circ$

c) $\theta = -2$

*2. Find one positive and one negative coterminal angle for a) $\theta = \frac{11\pi}{4}$ b) $\theta = -423^\circ$

3. Convert 2.5 radians to degree measure.

*4. Convert 330° to radian measure (in terms of π)

5. Convert to DD (degree decimal form): $-13^\circ 42' 15''$

6. Convert 12.4762° to DMS form.

*7. The central angle θ of a circle with radius 9 inches subtends an arc of 20 inches. Find θ .

8. A circle of radius r has a central angle of 15° which subtends (cuts) an arc of 23 inches. Find r .

*9. Find the point (x, y) on the unit circle that corresponds to the real number:

a) $t = \frac{3\pi}{2}$

b) $t = \frac{4\pi}{3}$

*10. Find the values of the 6 trigonometric functions/ratios (if defined) for

a) $t = -\frac{5\pi}{6}$

b) $t = 5\pi$

11. Evaluate: a) $\sin(-4.1)$

b) $\sec(-1.42)$

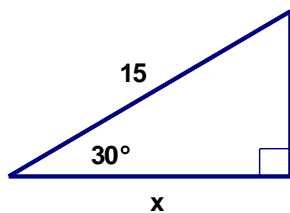
c) $\csc 14^\circ$

d) $\cot(1.14)$

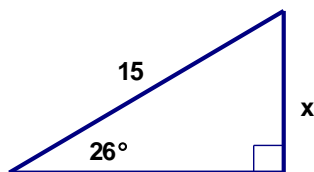
*12. Evaluate $\cot \frac{\pi}{6}$

13. Find the value of x in each of the triangles shown:

*a)



b)



14. The angle of depression from the top of a building to the base of a statue 48 feet from the base of the building is 72° . Determine the height of the building.

15. Given that θ is acute and $\cos \theta = \frac{5}{6}$, find a) $\sec \theta$ b) $\sin(90^\circ - \theta)$ c) $\tan \theta$

*16. Determine the quadrant in which θ lies if $\tan \theta < 0$ and $\cos \theta < 0$.

*17. Given $\sin \theta = -\frac{1}{5}$ and $\tan \theta < 0$, find $\cos \theta$.

18. Find the reference angle for a) $\theta = 305^\circ$

b) $\theta = \frac{7\pi}{3}$

*19. Find the exact value of $\cot(-150^\circ)$

*20. Find two values of θ ($0 \leq \theta < 2\pi$) such that $\cos \theta = -\frac{\sqrt{2}}{2}$

*21. Find two values of θ ($0^\circ \leq \theta < 360^\circ$) where $\cot \theta = \sqrt{3}$

*22. Given that $\sin \theta = -\frac{4}{7}$ and $\frac{3\pi}{2} \leq \theta < 2\pi$, find $\sec \theta$.