

WeBWork Assignment Homework08 is due : 05/21/2016 at 04:09pm EDT.

Reference: Axler, Precalculus, 2nd ed, Sections 4.4, 4.5, and 4.6

Here's the list of **functions and symbols** that WeBWork understands.

1. (1 pt) Questions 8-16:

Find the exact value of each without using a calculator:

a) $\tan\left(\frac{5\pi}{3}\right) =$ _____

b) $\tan\left(\frac{4\pi}{3}\right) =$ _____

c) $\cot\left(\frac{3\pi}{4}\right) =$ _____

d) $\sec\left(\frac{\pi}{3}\right) =$ _____

e) $\csc\left(\frac{7\pi}{6}\right) =$ _____

2. (1 pt) Suppose the angle θ is in the first quadrant, $0 \leq \theta \leq \pi/2$, and $\cos(\theta) = \frac{1}{8}$. Find exact values (as fractions, not decimal approximations) for the following.

(a) $\csc(\theta) =$ _____

(b) $\cot(\theta) =$ _____

3. (1 pt) Suppose the angle θ is in the second quadrant, $\pi/2 \leq \theta \leq \pi$, and $\sin(\theta) = \frac{1}{7}$. Find exact values (as fractions, not decimal approximations) for the following.

(a) $\sec \theta =$ _____

(b) $\tan \theta =$ _____

4. (1 pt) Suppose the angle θ is in the fourth quadrant, $\frac{3\pi}{2} \leq \theta \leq 2\pi$, and $\tan(\theta) = \frac{-3}{4}$. Find exact values (as fractions, not decimal approximations) for the following.

(a) $\sec(\theta) =$ _____

(b) $\sin(\theta) =$ _____

5. (1 pt) Evaluate the following expressions. The answer must be given as a fraction, NO DECIMALS. If the answer involves a square root it should be entered as *sqrt* . For instance, the square root of 2 should be written as *sqrt(2)*.

If $\tan(\theta) = -\frac{5}{3}$ and $\sin(\theta) > 0$, then find

(a) $\sin(\theta) =$ _____

(b) $\cos(\theta) =$ _____

(c) $\sec(\theta) =$ _____

(d) $\csc(\theta) =$ _____

(e) $\cot(\theta) =$ _____

6. (1 pt) You are given that $\pi < \theta < \frac{3\pi}{2}$. Fill in the missing entries in the table below.

$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$
-0.1000	_____	_____	_____	_____	_____

7. (1 pt) Find the equation of the line through the origin forming a 37° angle with the positive x axis.

Equation: _____

Find the equation of the line through the origin forming a 127° angle with the positive x axis.

Hint: The line is perpendicular to the one you found previously.

Equation: _____

8. (1 pt) You are given that $0 < \theta < \frac{\pi}{2}$. Fill in the missing entries in the table below.

$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$
_____	_____	2.1000	_____	_____	_____

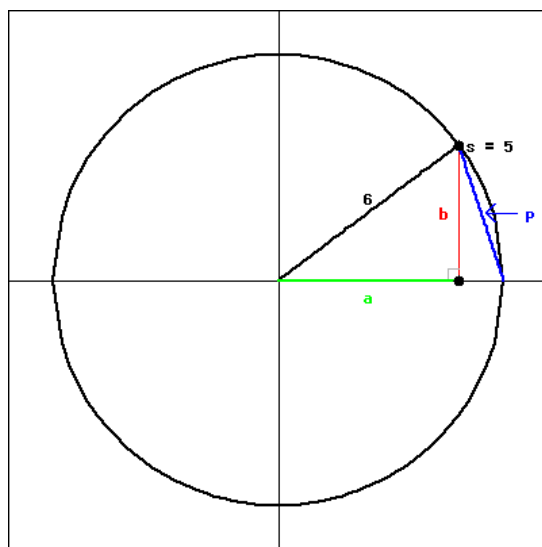
9. (1 pt)

Find the exact values for the lengths of the labeled segments a , b and p drawn in green, red, and blue, respectively. Note that $r = 6$ is the radius of the circle, and $s = 5$ is the arc length from the point $(6,0)$ around the circle to the indicated point.

$a =$ _____

$b =$ _____

$p =$ _____



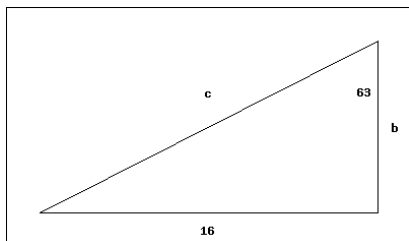
(Click on graph to enlarge)

10. (1 pt)

The top vertex of a right triangle has an angle of 63° , and the horizontal leg has length 16. Find the lengths of the other two sides.

$b =$ _____

$c =$ _____

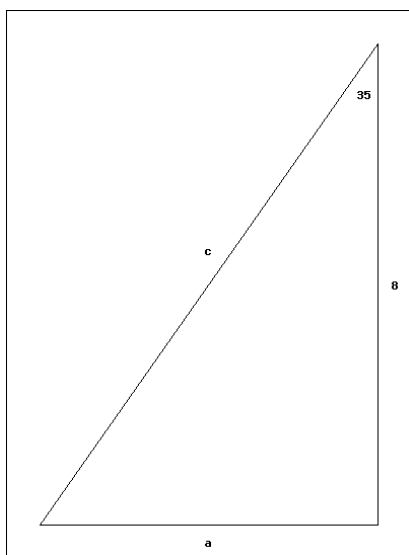


11. (1 pt)

The top vertex of a right triangle has an angle of 35° , and the vertical leg has length 8. Find the lengths of the other two sides.

$a =$ _____

$c =$ _____

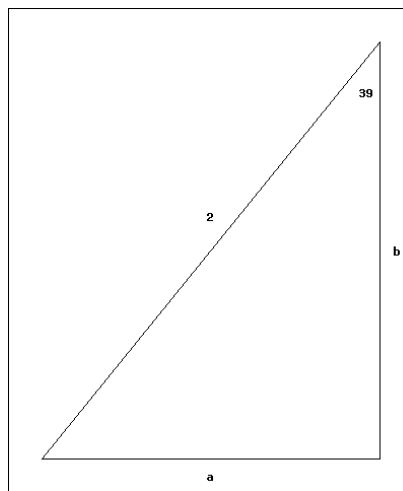


12. (1 pt)

The top vertex of a right triangle has an angle of 39° , and the hypotenuse has length 2. Find the lengths of the two legs.

$a =$ _____

$b =$ _____



13. (1 pt) From a vantage point 64 ft away from the base of a building, the top of the building is sighted at an angle of elevation of 34° . To the nearest foot, how high is the building?

Height = _____ feet

14. (1 pt) A 27 foot ladder leans against a vertical wall forming an angle of 75° with the ground. How high above the ground does the ladder touch the wall?

Height = _____ feet

15. (1 pt) Fill in the blanks:

1. If $\tan x = 3.5$ then $\tan(-x) =$ _____

2. If $\sin x = 0.6$ then $\sin(-x) =$ _____

3. If $\cos x = 0.1$ then $\cos(-x) =$ _____

4. If $\tan x = 2.5$ then $\tan(\pi + x) =$ _____

16. (1 pt)

Suppose

$$\sin(u) = \frac{3}{5}$$

and $\cos(u)$ is **positive**. Then

$\cos(u) =$ _____

$\tan(u) =$ _____

$\sin(-u) =$ _____

$\cos(-u) =$ _____

$\tan(-u) =$ _____

$\sin(u + \pi) =$ _____

$\cos(u + \pi) =$ _____

$\tan(u + \pi) =$ _____

$\sin(u + \frac{\pi}{2}) =$ _____

$\cos(u + \frac{\pi}{2}) =$ _____

$\tan(u + \frac{\pi}{2}) =$ _____

17. (1 pt)

Suppose

$$\sin(u) = \frac{3}{5}$$

and $\cos(u)$ is **negative**. Then

$\cos(u) =$ _____

$$\begin{aligned}\tan(u) &= \text{_____} \\ \sin(-u) &= \text{_____} \\ \cos(-u) &= \text{_____} \\ \tan(-u) &= \text{_____} \\ \sin(u + \pi) &= \text{_____} \\ \cos(u + \pi) &= \text{_____} \\ \tan(u + \pi) &= \text{_____} \\ \sin\left(u + \frac{\pi}{2}\right) &= \text{_____} \\ \cos\left(u + \frac{\pi}{2}\right) &= \text{_____} \\ \tan\left(u + \frac{\pi}{2}\right) &= \text{_____}\end{aligned}$$

18. (1 pt) If $\sin \theta = -0.8$ and $\pi < \theta < \frac{3\pi}{2}$ then

$$\begin{aligned}\sin(-\theta) &= \text{_____} \\ \sin(\theta + 2\pi) &= \text{_____} \\ \sin(\theta - 2\pi) &= \text{_____} \\ \sin(\theta + \pi) &= \text{_____} \\ \sin(\theta - \pi) &= \text{_____}\end{aligned}$$

$$\begin{aligned}\sin\left(\theta + \frac{\pi}{2}\right) &= \text{_____} \\ \sin\left(\theta - \frac{\pi}{2}\right) &= \text{_____}\end{aligned}$$

19. (1 pt) If $\cos \theta = -0.2$ and $\frac{\pi}{2} < \theta < \pi$ then

$$\begin{aligned}\cos(-\theta) &= \text{_____} \\ \cos(\theta + 2\pi) &= \text{_____} \\ \cos(\theta - 2\pi) &= \text{_____} \\ \cos(\theta + \pi) &= \text{_____} \\ \cos(\theta - \pi) &= \text{_____} \\ \cos\left(\theta + \frac{\pi}{2}\right) &= \text{_____} \\ \cos\left(\theta - \frac{\pi}{2}\right) &= \text{_____}\end{aligned}$$

20. (1 pt) If $\tan \theta = 3.1$ and $0 < \theta < \frac{\pi}{2}$ then

$$\begin{aligned}\tan(-\theta) &= \text{_____} \\ \tan(\theta + \pi) &= \text{_____} \\ \tan(\theta - \pi) &= \text{_____} \\ \tan\left(\theta + \frac{\pi}{2}\right) &= \text{_____} \\ \tan\left(\theta - \frac{\pi}{2}\right) &= \text{_____}\end{aligned}$$