

Simplify each expression to a single trig function or number.

1.  $\sec \theta \sin \theta$

2.  $\cos \theta \tan \theta$

3.  $\tan^2 \theta - \sec^2 \theta$

4.  $1 - \cos^2 \theta$

5.  $(1 - \cos \theta)(1 + \cos \theta)$

6.  $(\sec x - 1)(\sec x + 1)$

7.  $\frac{1}{\sin^2 A} - \frac{1}{\tan^2 A}$

8.  $1 - \frac{\sin^2 \theta}{\tan^2 \theta}$

9.  $\frac{1}{\cos^2 \theta} - \frac{1}{\cot^2 \theta}$

10.  $\cos \theta (\sec \theta - \cos \theta)$

11.  $\cos^2 A (\sec^2 A - 1)$

12.  $(1 - \cos x)(1 + \sec x)(\cos x)$

13.  $\frac{\sin x \cos x}{1 - \cos^2 x}$

14.  $\frac{\tan^2 \theta}{\sec \theta + 1} + 1$

15. Find the following for an angle in standard position with measure  $\frac{-10\pi}{7}$

a. The quadrant in which the angle is located. \_\_\_\_\_

b. The coterminal angle that is between 0 and  $2\pi$ . \_\_\_\_\_

c. The reference angle. \_\_\_\_\_.

16. Find the following for an angle in standard position with measure  $675^\circ$ .

a. The quadrant in which the angle is located. \_\_\_\_\_

b. The coterminal angle that is between 0 and  $360^\circ$ . \_\_\_\_\_

c. The reference angle. \_\_\_\_\_.

17. Find the following for an angle in standard position with measure  $\frac{23\pi}{6}$

a. The quadrant in which the angle is located. \_\_\_\_\_

b. The coterminal angle that is between 0 and  $2\pi$ . \_\_\_\_\_

c. The reference angle. \_\_\_\_\_.

d.  $\sin \frac{23\pi}{6} =$  \_\_\_\_\_       $\cos \frac{23\pi}{6} =$  \_\_\_\_\_       $\tan \frac{23\pi}{6} =$  \_\_\_\_\_

$\csc \frac{23\pi}{6} =$  \_\_\_\_\_       $\sec \frac{23\pi}{6} =$  \_\_\_\_\_       $\cot \frac{23\pi}{6} =$  \_\_\_\_\_

18. If  $\cot \theta = 7$  and  $\pi < \theta < 2\pi$ , sketch the angle  $\theta$  and find the value of the other five trig functions.

$\sin \theta =$  \_\_\_\_\_       $\csc \theta =$  \_\_\_\_\_

$\cos \theta =$  \_\_\_\_\_       $\sec \theta =$  \_\_\_\_\_

$\tan \theta =$  \_\_\_\_\_