

Name \_\_\_\_\_

Date \_\_\_\_\_

## WORKSHEET - THE BASIC 8 TRIG IDENTITIES

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. List the Basic 8 Identities.

Reciprocal	Ratio	Pythagorean
_____	_____	_____
_____	_____	_____
_____	_____	_____

### REVIEW.

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  $0^\circ$  and  $360^\circ$ . \_\_\_\_\_
- c) The reference angle. \_\_\_\_\_

17. 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. \_\_\_\_\_

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

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

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

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

ANSWERS: 1.  $\tan \theta$  2.  $\sin \theta$  3. -1 4.  $\sin^2 \theta$  5.  $\sin^2 \theta$  6.  $\tan^2 \theta$  7. 1 8.  $\sin^2 \theta$  9. 1 10.  $\sin^2 \theta$  11.  $\sin^2 A$   
 12.  $\sin^2 x$  13.  $\cot x$  14.  $\sec \theta$  15. see notes 16. a) Q4 b)  $315^\circ$  c)  $45^\circ$  17. a) Q2 b)  $\frac{4\pi}{7}$  c)  $\frac{3\pi}{7}$   
 18.  $\sin \theta = \frac{-\sqrt{2}}{10}$ ,  $\cos \theta = \frac{-7\sqrt{2}}{10}$ ,  $\tan \theta = \frac{1}{7}$ ,  $\csc \theta = -5\sqrt{2}$ ,  $\sec \theta = \frac{-5\sqrt{2}}{7}$