Math 3   Name:_____

Unit 1.3 Using Definitions of the Trigonometric Functions PRACTICE

Use the appropriate reciprocal identity to find each function value. Rationalize denominators when applicable.

1) $\cos\theta$, $if\ \sec\theta = -2.5$

2) $\cot\theta$, $if\ \tan\theta = -\frac{1}{5}$

3) $\sin\theta$, $if\ \csc\theta = 3$

4) $\sec\theta$, $if\ \cos\theta = -\frac{\sqrt{7}}{7}$

5) $\sin\theta$, $if\ \csc\theta = \sqrt{15}$

6) $\tan\theta$, $if\ \cot\theta = -\frac{\sqrt{5}}{3}$

7) $\sin\theta$, $if\ \csc\theta = 1.42716321$

8) $\tan\theta$, $if\ \cot\theta = 9.80425133$

9) Can a given angle θ satisfy both $\sin\theta > 0$ and $\csc\theta < 0$? Explain.

10) Explain what is wrong with the following item that appears on a trigonometry test:

$$\text{Find } \sec\theta \text{, given that } \cos\theta = \frac{3}{2}.$$

11) What is wrong with the following statement? $\tan 90° = \frac{1}{\cot 90°}$

Find a value of each variable.

12) $\tan(3\theta - 4°) = \frac{1}{\cot(5\theta - 8°)}$

13) $\sec(2\theta + 6°)\cos(5\theta + 3°) = 1$

14) $\sin(4\theta + 2°)\csc(3\theta + 5°) = 1$

15) $\cos(6A + 5°) = \frac{1}{\sec(4A+15°)}$

Identify the quadrant or quadrants for the angle satisfying the given conditions.

16) $\sin\theta > 0,\ \cos\theta < 0$

17) $\cos\theta > 0,\ \tan\theta > 0$

18) $\tan\theta > 0,\ \cot\theta > 0$

19) $\tan\theta < 0,\ \cot\theta < 0$

20) $\cos\theta < 0$

21) $\tan\theta > 0$

Give the signs of the sine, cosine, and tangent functions for each angle. (Write + or – in the blanks.)

22) 74° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___   23) 298° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___

24) 129° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___   25) 183° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___

26) 406° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___   27) 412° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___

28) −82° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___   29) −121° $sin \rightarrow$ ___, $cos \rightarrow$ ___, $tan \rightarrow$ ___

Decide whether each statement is possible or impossible for an angle θ.

30) $\sin \theta = 2$ 31) $\cos \theta = -1.001$ 32) $\tan \theta = 0.92$

33) $\cot \theta = -12.1$ 34) $\sec \theta = 1$ 35) $\tan \theta = 1$

36) $\sin \theta = \frac{1}{2}$ and $\csc \theta = 2$ 37) $\tan \theta = 2$ and $\cot \theta = -2$

Use identities to find each function value.

38) $\tan \theta$, if $\sec \theta = 3$, with θ in quadrant IV   39) $\sin \theta$, if $\cos \theta = -\frac{1}{4}$, with θ in quadrant II

40) $\csc \theta$, if $\cot \theta = -\frac{1}{2}$, with θ in quadrant IV   41) $\sec \theta$, if $\tan \theta = \frac{\sqrt{7}}{3}$, with θ in quadrant III

42) $\cos \theta$, if $\csc \theta = -4$, with θ in quadrant III   43) $\sin \theta$, if $\sec \theta = 2$, with θ in quadrant IV

Find the values of the six trigonometric functions for each angle.

44) with θ in quadrant III   45) with θ in quadrant II   46) with θ in quadrant III

$\sin \theta =$ $\sin \theta =$ $\sin \theta =$

$\cos \theta = -\frac{3}{5}$ $\cos \theta =$ $\cos \theta =$

$\tan \theta =$ $\tan \theta = -\frac{15}{8}$ $\tan \theta = \sqrt{3}$

$\csc \theta =$ $\csc \theta =$ $\csc \theta =$

$\sec \theta =$ $\sec \theta =$ $\sec \theta =$

$\cot \theta =$ $\cot \theta =$ $\cot \theta =$