

**Unit 4 Test Study Guide**

*Show all evidence (drawings, calculations, etc.) of how you arrived at your answers. All answers should be exact, simplified, and rationalized – no decimals unless the individual question specifies otherwise.*

1. Identify a coterminal angle that is between  $0^\circ$  and  $360^\circ$ , and state in which quadrant it lays.

a.  $1670^\circ$

b.  $-326^\circ$

2. Convert  $146^\circ$  to radian measure.

3. Convert  $\frac{9\pi}{4}$  to degree measure.

4. Evaluate the following by drawing the appropriate reference triangle:

a.  $\sin\left(\frac{\pi}{2}\right) =$

b.  $\cos 495^\circ =$

c.  $\sec 270^\circ =$

d.  $\cot -135^\circ =$

5. If  $\theta$  is in Quadrant IV and  $\tan \theta = -\frac{5}{12}$ , find the exact value for  $\sin \theta$ .

6. If  $\theta$  is an angle in standard position whose terminal side lies in Quadrant II, and  $\sec \theta = -\frac{7}{5}$ , find the values of the trigonometric functions for  $\theta$ .

$$\sin \theta =$$

$$\csc \theta =$$

$$\cos \theta =$$

$$\sec \theta = -\frac{7}{5}$$

$$\tan \theta =$$

$$\cot \theta =$$

7. Find the exact values for the following trigonometric functions for an angle  $\theta$  in standard position if a point with coordinates  $(-3, 2)$  lies on the terminal side.

a.  $\sin \theta =$  \_\_\_\_\_

b.  $\sec \theta =$  \_\_\_\_\_

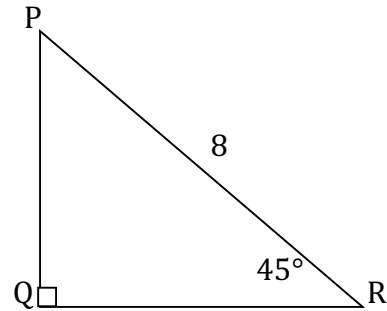
c.  $\tan \theta =$  \_\_\_\_\_

8. Find the exact values of the trigonometric functions for  $\angle R$  in the triangle below.

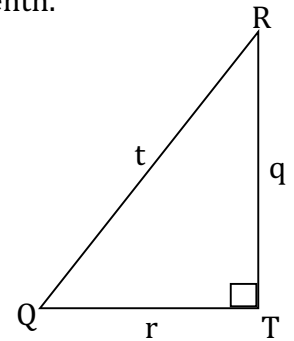
a.  $\sin R =$  \_\_\_\_\_

b.  $\cos R =$  \_\_\_\_\_

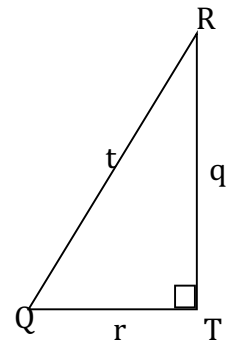
c.  $\cot R =$  \_\_\_\_\_



9. Solve the triangle if  $Q = 42^\circ$  and  $r = 13$ . Round your answers to the nearest tenth.



10. Solve the triangle if  $q = 14$  and  $r = 7.7$ . Round your answers to the nearest tenth.



**Integrated Math III****Name:** \_\_\_\_\_**Per:** \_\_\_\_\_ **Date:** \_\_\_\_\_

11. Frida is attempting to measure the height of a tree. If she walks 15 feet away from the tree, the angle of elevation to the top of the tree is  $56^\circ$ . How tall is the tree?

12. Ron is building a ramp to make a building wheelchair accessible. The ramp needs to be 24 inches in length with a rise of 4.5 inches. Find the angle of elevation.

13. Simplify:  $4(\sin^2 \theta + \cos^2 \theta) - 2$

14. Verify:  $\cos \theta \cdot \csc \theta + \tan \theta \cdot \cot \theta = \cot \theta + 1$