

Chapter 5 QUIZ REVIEW  
Sections 1 - 3

NAME: Key  
Date \_\_\_\_\_ Hour \_\_\_\_\_

1. Change  $47.283^\circ$  to degrees, minutes and seconds.

$$\begin{aligned} 47.283^\circ &= 47 + 0.283(60) \\ &= 47 + 16.98 \\ &= 47 + 16 + 0.98(60) \end{aligned}$$

$$47^\circ 16' 58.8''$$

2. Write  $122^\circ 43' 12''$  as a degree to the nearest thousandth.

$$\begin{aligned} 122^\circ 43' 12'' &= 122 + 43/60 + 12/3600 \\ &= 122 + 0.717 + 0.003 \\ &= 122.720^\circ \end{aligned}$$

3. Give the angle measure represented by 2.25 rotations counterclockwise.

$$2.25(360) = 810^\circ$$

4. Identify all angles that are coterminal with  $480^\circ$ .

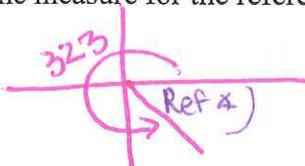
$$480^\circ + 360K$$

5. Find one positive angle and one negative angle that are coterminal with  $75^\circ$ .

$$75 + 360 = 435^\circ$$

$$75 - 360 = -285^\circ$$

6. Find the measure for the reference angle for  $323^\circ$ .



$$360 - 323 = 37^\circ$$

\* know how to find in each quadrant!

Use the picture at the right for 7-9.

7. Find the value of the cosine for  $\angle A$ .

$$\cos A = \frac{3}{\sqrt{34}}, \frac{\sqrt{34}}{\sqrt{34}} = \frac{3\sqrt{34}}{34}$$

$$\cos = \frac{o}{h}$$

8. Find the value of the cotangent for  $\angle A$ .

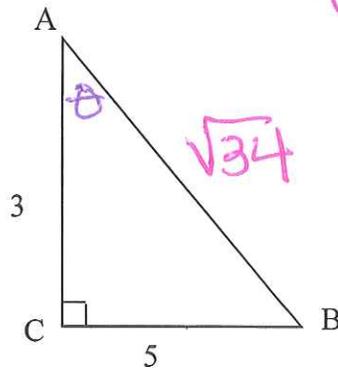
$$\cot A = \frac{3}{5}$$

$$\cot = \frac{a}{o}$$

9. Find the value of the secant for  $\angle A$ .

$$\sec A = \frac{\sqrt{34}}{3}$$

$$\sec = \frac{h}{o}$$



$$\begin{aligned} 3^2 + 5^2 &= c^2 \\ 9 + 25 &= c^2 \\ 34 &= c^2 \\ \sqrt{34} &= c \end{aligned}$$

$$\cot = \frac{x}{y} \quad \tan = \frac{y}{x}$$

$$\sin = \frac{y}{r} \quad \csc = \frac{1}{y}$$

10. If  $\cot \theta = -\frac{5}{3}$ , find  $\tan \theta$ .

$$\tan \theta = \boxed{-\frac{3}{5}}$$

11. If  $\sin \theta = 0.5$ , find  $\csc \theta$ .

$$\sin = \frac{1}{2}$$

$$\csc = 1 \div \frac{1}{2} = 1 \cdot 2 = \boxed{2}$$

Use the unit circle to find each value.

12.  $\sin(-45^\circ)$  use  $315^\circ$  (sin = y value)

$$\boxed{-\frac{\sqrt{2}}{2}}$$

13.  $\cos 120^\circ$  x value = cos

$$\boxed{-\frac{1}{2}}$$

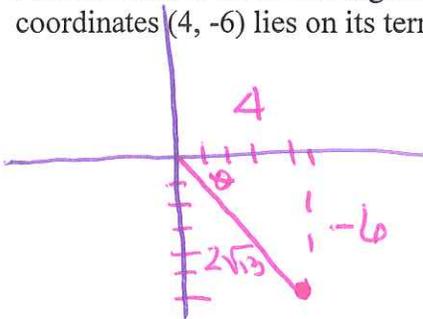
14.  $\csc 215^\circ$   $225^\circ$

$$\frac{1}{y} = \frac{1}{-\frac{\sqrt{2}}{2}} = -\frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = -\frac{2\sqrt{2}}{2} = \boxed{-\sqrt{2}}$$

15.  $\cot 330^\circ$

$$\frac{x}{y} = \frac{\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \frac{\sqrt{3}}{2} \cdot \left(-\frac{2}{1}\right) = \boxed{-\sqrt{3}}$$

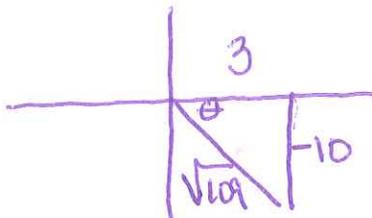
16. Find the values of the six trigonometric functions of an angle in standard position if the point with coordinates (4, -6) lies on its terminal side.



$$\begin{aligned} 4^2 + (-6)^2 &= c^2 \\ 16 + 36 &= c^2 \\ \sqrt{52} &= c \\ 2\sqrt{13} &= c \end{aligned}$$

$$\begin{aligned} \sin \theta &= \frac{-6}{2\sqrt{13}} = -\frac{3\sqrt{13}}{13} & \csc \theta &= -\frac{\sqrt{13}}{3} \\ \cos \theta &= \frac{4}{2\sqrt{13}} = \frac{2\sqrt{13}}{13} & \sec \theta &= \frac{\sqrt{13}}{2} \\ \tan \theta &= \frac{-6}{4} = -\frac{3}{2} & \cot \theta &= -\frac{2}{3} \end{aligned}$$

17. Suppose  $\theta$  is an angle in standard position whose terminal side lies in Quadrant IV. If  $\cot \theta = \frac{3}{-10}$ , find the value of  $\sin \theta$ .



$$\begin{aligned} 3^2 + 10^2 &= c^2 \\ 109 &= c^2 \\ \sqrt{109} &= c \end{aligned}$$

draw 1st.

$$\sin = \frac{y}{h} = \frac{-10}{\sqrt{109}} \cdot \frac{\sqrt{109}}{\sqrt{109}} = \boxed{\frac{-10\sqrt{109}}{109}}$$

$$\cot = \frac{x}{y}$$

18. Mrs. Schneider is back on the Ferris wheel at the local carnival. When she gets into the seat that is at the bottom of the Ferris wheel, she is 4 feet above ground.

- The Ferris wheel rotates  $300^\circ$  counterclockwise and stops to let another passenger on the ride. Considering the radius of the Ferris wheel to be 40 feet, how far above the ground is Mrs. Schneider when the Ferris wheel stops?
- If the radius of the Ferris wheel is 36 feet, how far above ground will Mrs. Schneider be when her seat reaches the top?

c. Suppose the radius of the Ferris wheel is only 30 feet. How far above the ground is Mrs. Schneider be after the Ferris wheel rotates  $300^\circ$ ?

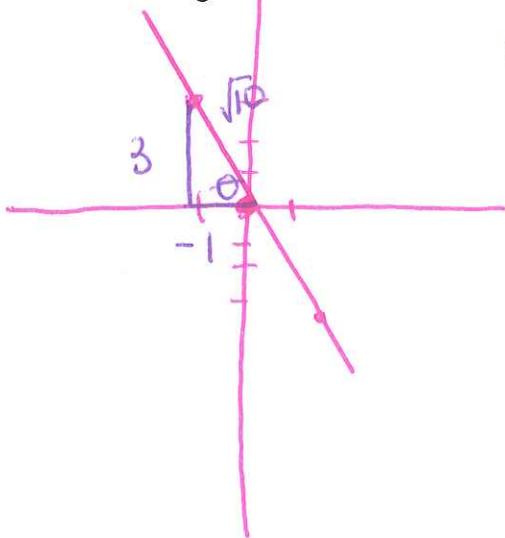
d. Suppose the radius of the Ferris wheel is  $r$ . Write an expression for the distance from the ground to Mrs. Schneider after the Ferris wheel rotates  $300^\circ$ .

19. A tower restaurant in Sydney, Australia, is 300 meters above sea level and provides a  $360^\circ$  panoramic view of the city as it rotates every 70 minutes. A tower restaurant in San Antonio, Texas, is 750 feet tall. It revolves at a rate of one revolution per hour.

a. In a day, how many more revolutions does the restaurant in San Antonio make than the one in Sydney?

b. In a week, how many more degrees does a speck of dirt on the window of the restaurant in San Antonio revolve than a speck of dirt on the window of the restaurant in Sydney?

20. The terminal side of an angle  $\theta$  in standard position coincides with the line  $y = -3x$  and lies in Quadrant II. Find the six trigonometric functions of  $\theta$ .



$$\begin{aligned} 3^2 + (-1)^2 &= c^2 \\ 9 + 1 &= c^2 \\ \sqrt{10} &= c \end{aligned}$$

$$\sin = \frac{o}{h} = \frac{3}{\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = \frac{3\sqrt{10}}{10}$$

$$\cos = \frac{a}{h} = \frac{-1}{\sqrt{10}} = \frac{-\sqrt{10}}{10}$$

$$\tan = \frac{o}{a} = \frac{3}{-1} = -3$$

$$\cot = -\frac{1}{3}$$

$$\sec = -\sqrt{10}$$

~~csc~~  

$$\csc = \frac{\sqrt{10}}{3}$$

