

$$\begin{aligned} 1. \sin \theta &= \frac{3}{5} & \csc \theta &= \frac{5}{3} \\ \cos \theta &= \frac{4}{5} & \sec \theta &= \frac{3}{4} \\ \tan \theta &= \frac{3}{4} & \cot \theta &= \frac{4}{3} \end{aligned}$$

### 1.9 Unit 1 Review

Determine the exact values of the six trig functions that correspond to the given point.

$$\begin{aligned} 1. (4, 3) \quad 2. \sin \theta &= \frac{\sqrt{17}}{17} & \csc \theta &= \sqrt{17} \\ 2. (-4, 1) \quad \cos \theta &= -\frac{4\sqrt{17}}{17} & \sec \theta &= -\frac{\sqrt{17}}{4} \\ & \tan \theta = -\frac{1}{4} & \cot \theta &= -4 \end{aligned}$$

State the quadrant in which the terminal ray of  $\theta$  lies.

- 3.  $\sin \theta < 0$  and  $\cos \theta < 0$  III
- 4.  $\sin \theta > 0$  and  $\tan \theta < 0$  II
- 5.  $\sin \theta > 0$  and  $\cos \theta > 0$  I
- 6.  $\tan \theta < 0$  and  $\sec \theta > 0$  IV

Find the values of the six trig functions.

$$\begin{aligned} 7. \sin \theta &= \frac{3}{5} & \theta \text{ is in Quadrant II} \\ \cos \theta &= -\frac{4}{5} & \csc \theta = \frac{5}{3} \\ \tan \theta &= -\frac{3}{4} & \sec \theta = -\frac{5}{4} \\ \text{Find the reference angles.} & \cot \theta = -\frac{4}{3} \end{aligned}$$

$$9. 295^\circ \quad 10. 85^\circ \quad 11. \frac{3\pi}{4} \quad 12. \frac{11\pi}{6}$$

$$\theta' = 65^\circ \quad \theta' = 85^\circ \quad \theta' = \frac{\pi}{4} \quad \theta' = \frac{\pi}{6}$$

Find one coterminal angle with counter-clockwise rotation AND with clockwise rotation for the given angle.

$$\begin{aligned} 13. 261^\circ & \text{ CW: } -99^\circ & 14. \frac{5\pi}{11} & \text{ CW: } -\frac{17\pi}{11} \\ & \text{ CCW: } 621^\circ & & \text{ CCW: } \frac{27\pi}{11} \end{aligned}$$

15. What does it mean for an angle to be in standard position?  
 vertex is on the origin, initial side is on the positive x-axis and the terminal side is measured positive counter-clockwise

### Vocabulary/Topics to Know:

- standard position
- terminal ray
- initial ray
- quadrantal angles
- negative angles vs. positive angles
- radian measure vs. degree measure
- coterminal angles
- reference angles
- Unit Circle
- undefined

16. How do you convert degrees to radians?

$$\text{multiply by } \frac{\pi}{180}$$

AND then radians to degrees?

$$\text{multiply by } \frac{180}{\pi}$$

17. Write an equation of the sine function with amplitude 1/2, period 2, and vertical shift down 4.

$$\text{period: } \frac{2\pi}{b} = 2 \quad b = \pi \quad y = \frac{1}{2} \sin(\pi x) - 4$$

18. State the period of the function  $y = \sin(\pi/4 x)$ .

$$\frac{2\pi}{\pi/4} = 8$$

19. Where does the maximum value occur  $[0, 2\pi]$  for the function  $y = -3\cos(x + \pi/4)$

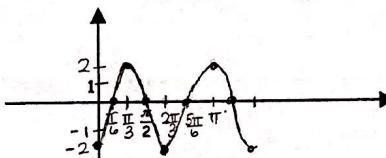
$x$ -value only highest point

20. Where do the asymptotes occur for one period of  $y = \csc(x) + 1$   $X = 0, \pi, 2\pi$

where  $\sin x = 0$

Graph each function. Fill in the blanks and label key points.

21.  $y = -2 \cos(3x)$



Amp:  $\frac{2}{2\pi}$

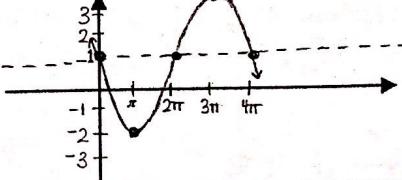
Period:  $\frac{2\pi}{3}$

Phase Shift: 0

Vertical Shift: 0

Imp Values: every  $\frac{\pi}{6}$

22.  $y = -3 \sin(\frac{1}{2}x) + 1$



Amp: 3

Period:  $4\pi$

Phase Shift: 0

Vertical Shift: up 1

Imp Values: every  $\pi$

