

Name: \_\_\_\_\_

Period: \_\_\_\_\_

## Evaluating Trig Functions

Evaluate each of the following. Write your EXACT answer (no decimals!)

1.  $\tan \frac{\pi}{3} = \sqrt{3}$

2.  $\cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$

3.  $\cos \frac{\pi}{2} = 0$

4.  $\sin \frac{\pi}{6} = \frac{1}{2}$

5.  $\tan \frac{\pi}{4} = 1$

6.  $\sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$

7.  $\cot \frac{\pi}{2} = 0$

8.  $\csc \frac{-7\pi}{3} = -2\frac{\sqrt{3}}{3}$

9.  $\sec \frac{-3\pi}{4} = -\sqrt{2}$

10.  $\tan \frac{-9\pi}{2} = \text{undef}$

11.  $\cot \frac{23\pi}{6} = -\sqrt{3}$

12.  $\sec \frac{-10\pi}{3} = -2$

13.  $\sin \frac{-23\pi}{6} = \frac{1}{2}$

14.  $\csc \frac{-\pi}{4} = -\sqrt{2}$

15.  $\cos \frac{13\pi}{3} = \frac{1}{2}$

16.  $\cot -\pi = \text{undef}$

17.  $\cos \frac{-7\pi}{4} = \frac{\sqrt{2}}{2}$

18.  $\sec \frac{-5\pi}{2} = \text{undef}$

19.  $\sin \frac{5\pi}{3} = -\frac{\sqrt{3}}{2}$

20.  $\csc \frac{10\pi}{3} = -2\frac{\sqrt{3}}{3}$

Name: Key

Evaluating Trig Functions (Not on the Unit Circle!)

Find the exact value of all six trigonometric functions for each of the following. (Hint: add or subtract  $2\pi$  or  $360^\circ$  until you have a value that is on the unit circle!)

1.  $\frac{5\pi}{3}$

$$\begin{aligned} \sin \theta &= -\frac{\sqrt{3}}{2} & \csc \theta &= -\frac{2\sqrt{3}}{3} \\ \cos \theta &= \frac{1}{2} & \sec \theta &= 2 \\ \tan \theta &= -\sqrt{3} & \cot \theta &= -\frac{\sqrt{3}}{3} \end{aligned}$$

2.  $\frac{7\pi}{3}$

$$\begin{aligned} \sin \theta &= \frac{\sqrt{3}}{2} & \csc \theta &= \frac{2\sqrt{3}}{3} \\ \cos \theta &= \frac{1}{2} & \sec \theta &= 2 \\ \tan \theta &= \sqrt{3} & \cot \theta &= \frac{1}{\sqrt{3}} \end{aligned}$$

3.  $405^\circ$

$$\begin{aligned} \sin \theta &= \frac{\sqrt{3}}{2} & \csc \theta &= \frac{2}{\sqrt{3}} \\ \cos \theta &= \frac{1}{2} & \sec \theta &= 2 \\ \tan \theta &= \sqrt{3} & \cot \theta &= \frac{1}{\sqrt{3}} \end{aligned}$$

4.  $-\frac{\pi}{6}$

$$\begin{aligned} \sin \theta &= -\frac{1}{2} & \csc \theta &= -2 \\ \cos \theta &= \frac{\sqrt{3}}{2} & \sec \theta &= \frac{2\sqrt{3}}{3} \\ \tan \theta &= -\frac{1}{\sqrt{3}} & \cot \theta &= -\sqrt{3} \end{aligned}$$

5.  $-45^\circ$

$$\begin{aligned} \sin \theta &= -\frac{\sqrt{2}}{2} & \csc \theta &= -\frac{\sqrt{2}}{2} \\ \cos \theta &= \frac{\sqrt{2}}{2} & \sec \theta &= \frac{\sqrt{2}}{2} \\ \tan \theta &= -1 & \cot \theta &= -1 \end{aligned}$$

6.  $\frac{5\pi}{2}$

$$\begin{aligned} \sin \theta &= 1 & \csc \theta &= 1 \\ \cos \theta &= 0 & \sec \theta &= \text{undef} \\ \tan \theta &= \text{undef} & \cot \theta &= 0 \end{aligned}$$

7.  $-180^\circ$

$$\begin{aligned} \sin \theta &= 0 & \csc \theta &= \text{undef} \\ \cos \theta &= -1 & \sec \theta &= -1 \\ \tan \theta &= 0 & \cot \theta &= \text{undef} \end{aligned}$$

8.  $-\frac{\pi}{2}$

$$\begin{aligned} \sin \theta &= -1 \\ \cos \theta &= 0 \\ \tan \theta &= \text{undef} \\ \csc \theta &= -1 \\ \sec \theta &= \text{undef} \\ \cot \theta &= 0 \end{aligned}$$

9.  $480^\circ$

$$\begin{aligned} \sin \theta &= \frac{\sqrt{3}}{2} \\ \cos \theta &= -\frac{1}{2} \\ \tan \theta &= -\sqrt{3} \\ \csc \theta &= \frac{2}{\sqrt{3}} \\ \sec \theta &= -2 \\ \cot \theta &= -\frac{\sqrt{3}}{3} \end{aligned}$$