

Intro to Radians

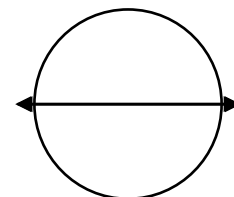
Intro to Calculus

Name: _____

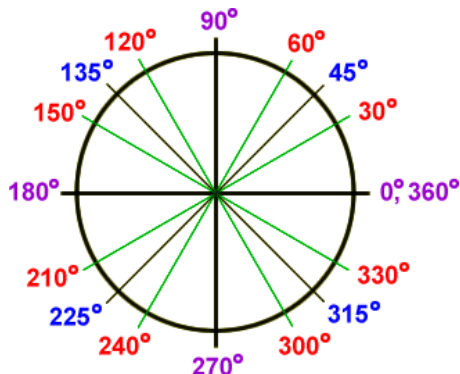
Angles can be measured in degrees (1 circle = 360°) or in radians (1 circle = 2π radians)

1 radian is the angle of rotation that creates an arc length of 1 radius

1) Given this definition of a radian, sketch an angle that you believe is about 1 radian in measure on this circle.



2) Fill in the radian measures:



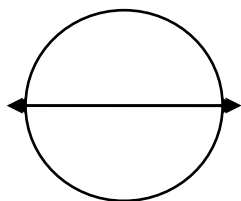
2) Given that π radians = 180° , figure out a way to convert between radians and degrees:

Convert 14° to radians

Convert 3π radians to degrees

3) Given the following angles measured in **radians**, sketch the angle and determine whether the $\sin(\theta)$, $\cos(\theta)$, and $\tan(\theta)$ are positive, negative, zero, or undefined.

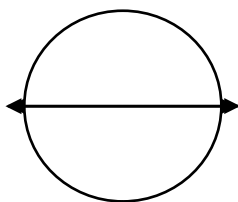
$\frac{3}{2}\pi$ radians



$$\sin\left(\frac{3\pi}{2}\right) =$$

$$\cos\left(\frac{3\pi}{2}\right) =$$

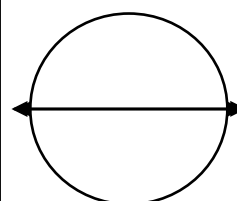
-3 radians



$$\sin(-3) =$$

$$\cos(-3) =$$

$\frac{4}{5}\pi$ radians



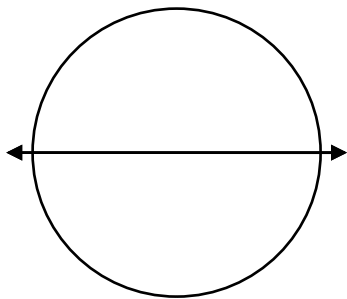
$$\sin\left(\frac{4}{5}\pi\right) =$$

$$\cos\left(\frac{4}{5}\pi\right) =$$

$$\tan\left(\frac{3\pi}{2}\right) =$$

$$\tan(-3) =$$

$$\tan\left(\frac{4}{5}\pi\right) =$$



2π radians

$$\sin(2\pi) =$$

$$\cos(2\pi) =$$

$$\tan(2\pi) =$$

4) Find the exact value of each expression below.

1. $\cos \frac{3\pi}{2}$

2. $\sin \left(\frac{5\pi}{4} \right)$

3. $\cos \frac{7\pi}{4}$

4. $\tan \pi$

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

6. $\tan \frac{5\pi}{3}$

7. $\sin 2\pi$

8. $\tan \left(-\frac{4\pi}{3} \right)$

9. $\tan \left(-\frac{\pi}{6} \right)$

10. $\sec \frac{-\pi}{3}$

11. $\csc 2\pi$

12. $\cot \left(\frac{\pi}{4} \right)$