

M205: Trigonometric Functions Pre-Badge Task

New Badge Alert!

This task will provide a preview of what we will be learning during the M205 - Trigonometric Functions Badge. You already know so much math, so use this task to share any understanding that you have before we start our learning. You will have a chance to do the same task at the end of the badge to see how your thinking has evolved.

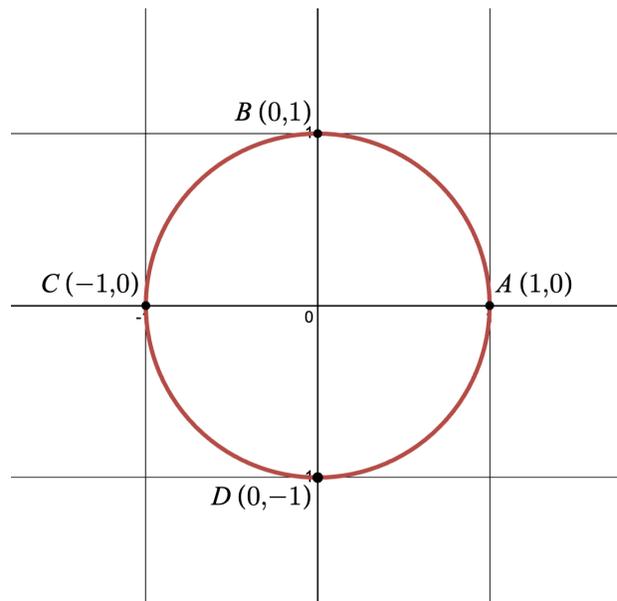
The Task

QUESTION 1

The image shows the unit circle with four marked points A , B , C , and D . Determine the standard position radian measure for each point.

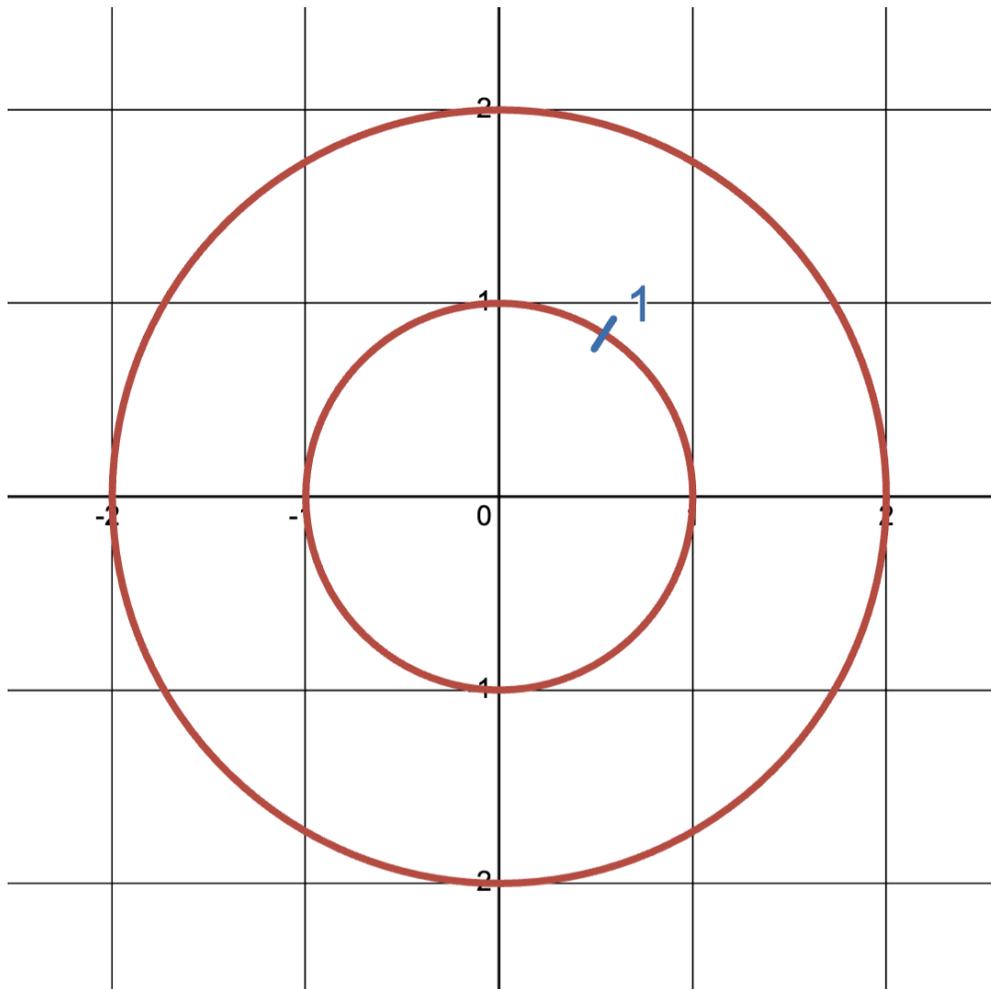


Point	Radian Measure
A	
B	
C	
D	



QUESTION 2

The figure shows concentric circles with radii 1 and 2, respectively. A mark is drawn at standard position angle 1 radian on the inner circle. Mark measurements of 1 radian and 2 radians on the outer circle.



QUESTION 3

Evaluate each trigonometric expression.



$$\cos \frac{\pi}{4} =$$

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

$$\sin \frac{\pi}{4} =$$

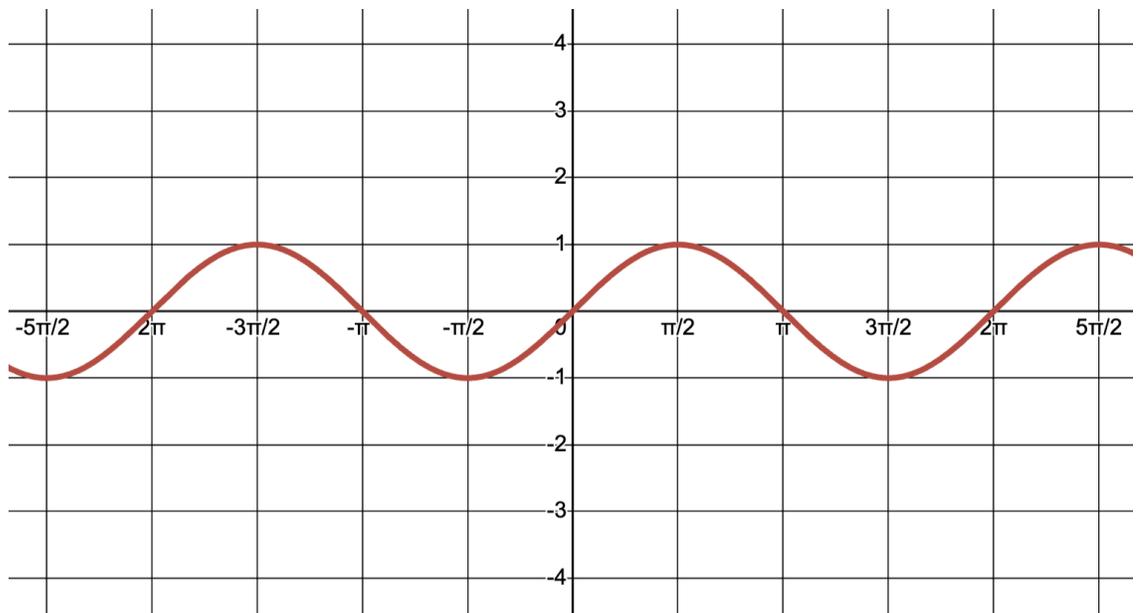
$$\sin \frac{2\pi}{3} =$$

$$\tan \frac{\pi}{4} =$$

$$\tan \frac{2\pi}{3} =$$

$$\left(\cos \frac{\pi}{4}\right)^2 + \left(\sin \frac{\pi}{4}\right)^2 =$$

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

QUESTION 4The image below shows the graph of $y = \sin x$. On the same grid, draw the graph of $y = 3\sin\left(x - \frac{\pi}{2}\right)$.

QUESTION 5

The height h (measured in feet from the ground) of a rider on a Ferris wheel in Southern California can be modeled by the equation $h(t) = 64 + 54 \cos \frac{\pi}{60} t$, where t is measured in seconds. How long does it take for the Ferris wheel to complete one revolution? What is the maximum height reached by a rider on this Ferris wheel?

