

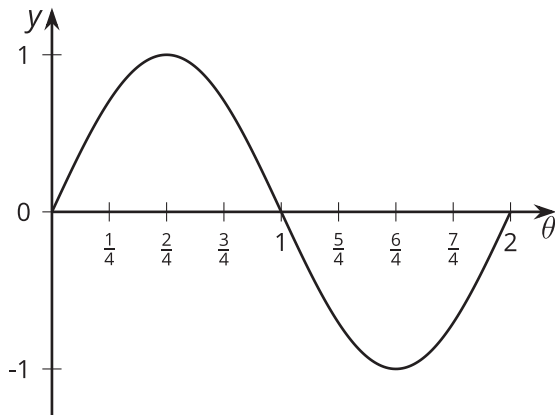
Unit 6 Lesson 16: Features of Trigonometric Graphs (Part 2)

1 Which One Doesn't Belong: Graph Periods (Warm up)

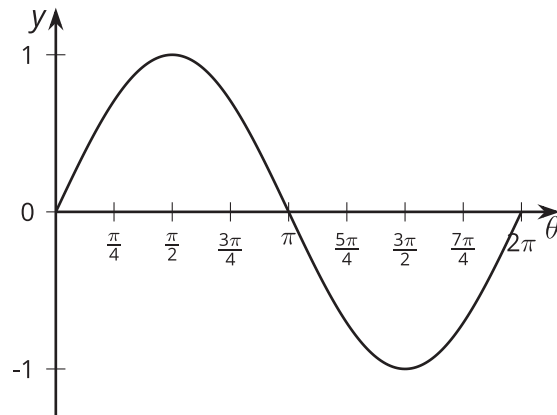
Student Task Statement

Which one doesn't belong?

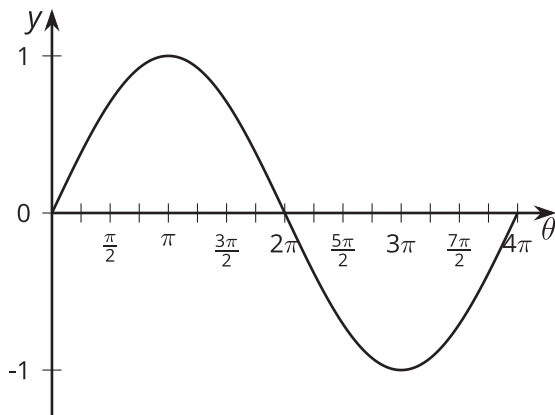
A. $y = \sin(\pi\theta)$



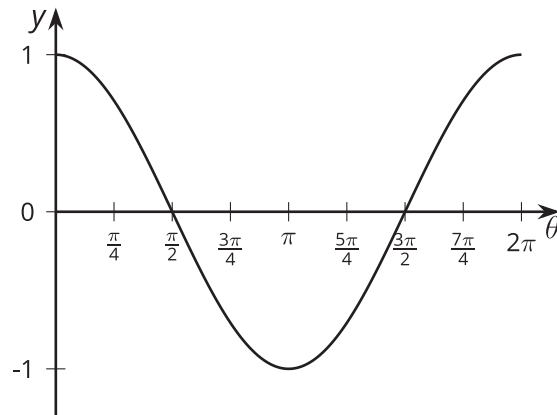
B. $y = \sin(\theta)$



C. $y = \sin(\frac{1}{2}\theta)$



D. $y = \sin(\theta + \frac{\pi}{2})$

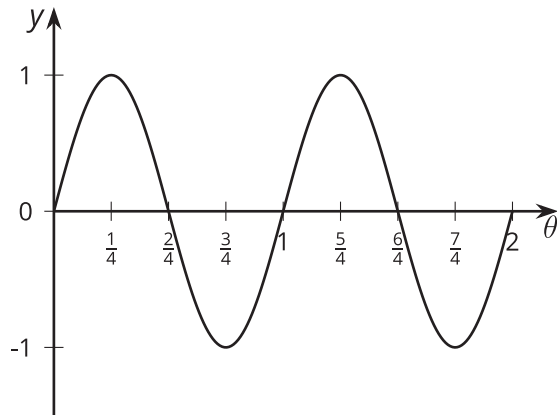


2 Any Period

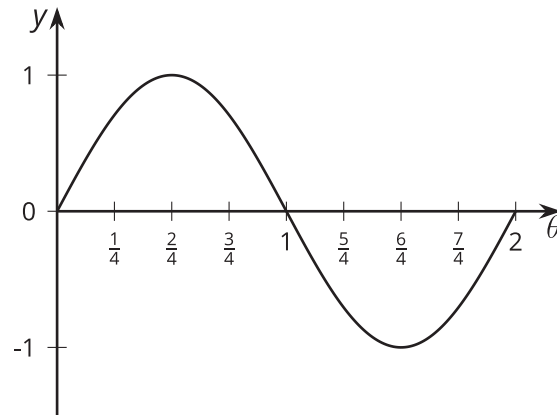
Student Task Statement

1. For each graph of a trigonometric function, identify the period.

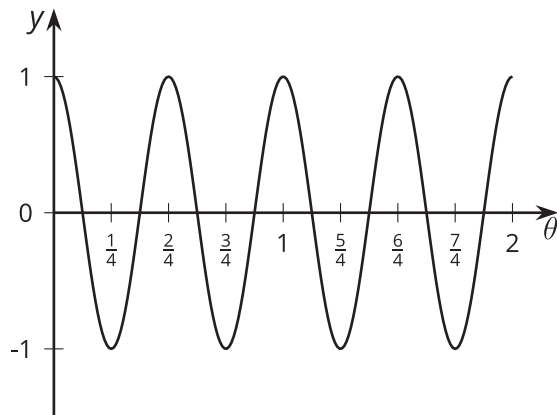
A



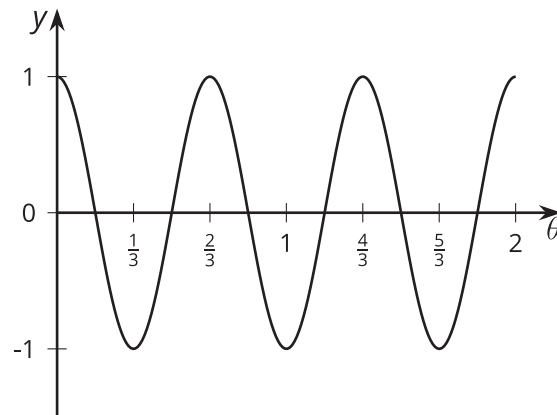
B



C



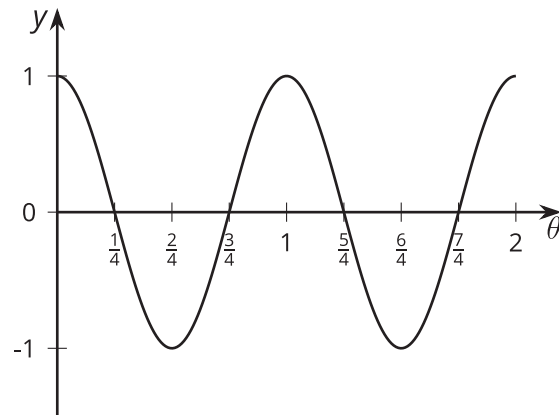
D



2. Here are some trigonometric functions. Find the period of each function.

function	period
$y = \cos(\theta)$	
$y = \cos(3\theta)$	
$y = \sin(6\theta)$	
$y = \sin(10\theta)$	
$y = \cos\left(\frac{1}{3}\theta\right)$	

3. What is the period of the function $y = \cos(\pi\theta)$? Explain your reasoning.
4. Identify a possible equation for a trigonometric function with this graph.



3 Around the World's Largest Ferris Wheel

Student Task Statement



The world's tallest Ferris wheel is in Las Vegas. The height h in feet of one of the passenger seats on the Ferris wheel can be modeled by the function $f(t) = 275 + 260 \sin\left(\frac{2\pi t}{30}\right)$ where time t is measured in minutes after 8:00 a.m.

1. What is the diameter of the Ferris wheel? Explain how you know.
2. How long does it take the Ferris wheel to make a complete revolution? Explain how you know.
3. Give at least three different times when the passenger seat modeled by f is at its lowest point. Explain how you know.
4. Sketch a graph of the height of the seat on the Ferris wheel for at least two full revolutions.