## 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. $y=sin(πθ)$



B. $y=sin(θ)$



C. $y=sin(\frac{1}{2}θ)$



D. $y=sin(θ+\frac{π}{2})$



### 2 Any Period

#### Student Task Statement

1. For each graph of a trigonometric function, identify the period.
* A
* 
* B
* 
* C
* 
* D
* 
1. Here are some trigonometric functions. Find the period of each function.

|  |  |
| --- | --- |
| * function
 | * period
 |
| * $y=cos(θ)$
 | *
 |
| * $y=cos(3θ)$
 | *
 |
| * $y=sin(6θ)$
 | *
 |
| * $y=sin(10θ)$
 | *
 |
| * $y=cos\left(\frac{1}{3}θ\right)$
 | *
 |

1. What is the period of the function $y=cos(πθ)$? Explain your reasoning.
2. 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 $f(t)=275+260sin\left(\frac{2πt}{30}\right)$ 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.



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