**Unit 8: Graphs of Trigonometric Functions** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Ѳ** | **cos(Ѳ)** |  | **Ѳ** | **sin(Ѳ)** |
| 0 |  |  | 0 |  |
| $$\frac{π}{3}$$ |  |  | $$\frac{π}{6}$$ |  |
| $$\frac{π}{2}$$ |  |  | $$\frac{π}{2}$$ |  |
| $$\frac{2π}{3}$$ |  |  | $$\frac{5π}{6}$$ |  |
| $$π$$ |  |  | $$π$$ |  |
| $$\frac{4π}{3}$$ |  |  | $$\frac{7π}{6}$$ |  |
| $$\frac{3π}{2}$$ |  |  | $$\frac{3π}{2}$$ |  |
| $$\frac{5π}{3}$$ |  |  | $$\frac{11π}{6}$$ |  |
| $$2π$$ |  |  | $$2π$$ |  |

Graph of “Cosine”



 1

 0.5

 -0.5

 -1



 1

 0.5

 -0.5

 -1

Graph of “Sine”

 

**Graphing in the Calculator:**

1. Calculator needs to be in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mode

2. Use “x” for Ѳ

3. Zoom \_\_\_\_\_\_\_\_\_\_\_

**Transformations of sine & cosine**

Describe the transformations that took place, then sketch their graphs on the graph of the parent function below

a. $f\left(x\right)=2\sin(\left(x-\frac{π}{2}\right))$ b. $f\left(x\right)=\cos(\left(x+π\right))-1$ c.$f\left(x\right)=-4\sin(\left(x\right))$

  

 $y=asin⁡(bθ)$ or $y=acos⁡(bθ)$

**Amplitude:** half the height of the graph

**Cycle:** One complete pattern in a graph

**Period:** How long it takes to complete a cycle

* \_\_\_\_\_\_ is the amplitude of the function
* \_\_\_\_\_\_ is the number of cycles in the interval from \_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_ is the period of the function.

**Example 1:** Find the period and amplitude of each function below

a. b. $f\left(x\right)=4\sin(\left(x\right))-1$ c. $f\left(x\right)=\cos(\left(2x\right))$



Amplitude: \_\_\_\_\_\_\_\_\_ Amplitude: \_\_\_\_\_\_\_\_\_ Amplitude: \_\_\_\_\_\_\_\_\_

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

|  |  |
| --- | --- |
| 1. Given: $y=3cos2θ$
2. What is the amplitude of the function?\_\_\_\_\_\_\_\_\_\_
3. What is the period of this function?\_\_\_\_\_\_\_\_\_\_\_\_
 | 1. Given: $y=-\frac{1}{2}sin4θ$
2. What is the amplitude of the function?\_\_\_\_\_
3. What is the period of this function?\_\_\_\_\_\_\_
 |
| 1. Given: $y=1.5cos3θ$
2. What is the amplitude of the function?\_\_\_\_\_\_\_\_\_\_
3. What is the period of this function?\_\_\_\_\_\_\_\_\_\_\_\_\_
 | 1. Given: $y=0.5sin\frac{π}{3}θ$
2. What is the amplitude of the function?\_\_\_\_\_
3. What is the period of this function?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |

**Example 2:** Write the function and sketch the curve of the sine function with the following description: amplitude of 2 and period of $\frac{π}{2}$

**You Try:** Write the function and sketch the curve of the cosine function with the following description: amplitude of 4 and period of $4π$



1. Write sine function with the following description: Amplitude of 1 and period of $\frac{π}{4}$
2. Write the cosine function with the following description: Amplitude of $\frac{π}{6}$ and period of 6