

Angles, Unit Circle, Trig Graphs/Equations – Graphing S/C Functions

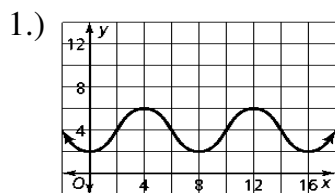
Periodic Function and Period

▪ One basic property of both the sine and the cosine function → considered _____

– **periodic function** → a function that _____
at _____ where _____.

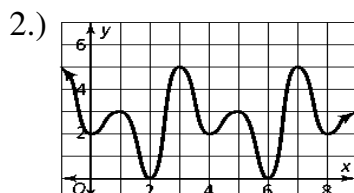
– **period (of a periodic function)** → the _____ of _____

Example 1: Determine if the given function is periodic. If so, state the period.



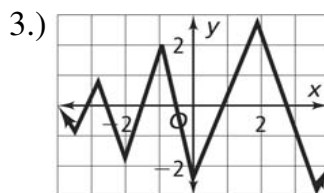
Periodic? Yes No

Period = _____



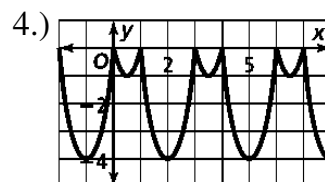
Periodic? Yes No

Period = _____



Periodic? Yes No

Period = _____

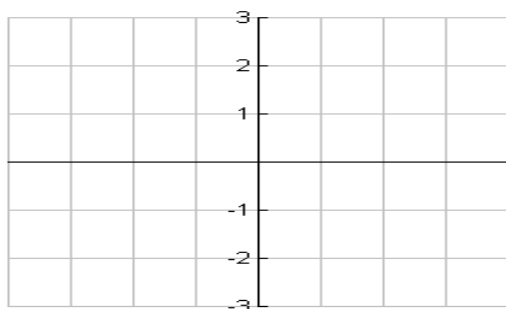


Periodic? Yes No

Period = _____

Graph of Trig Function # 1 - Sine

Make a table of domain values between $\pm 2\pi$
for the function of $y = \sin(x)$



Characteristics of the Sine Function:

Domain: _____ Range: _____

Period: _____ Amplitude: _____

Important Part of Graph: Domain is Positive

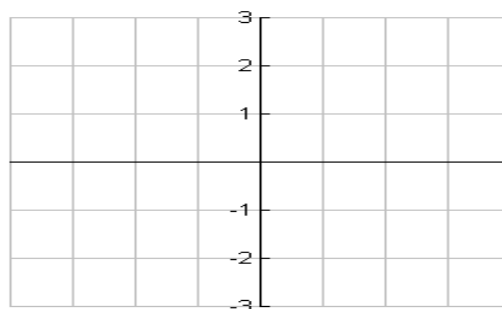
1.) _____ 4.) _____

2.) _____ 5.) _____

3.) _____ looks like a _____

Graph of Trig Function # 2 - Cosine

Make a table of domain values between $\pm 2\pi$
for the function of $y = \cos(x)$



Characteristics of the Cosine Function:

Domain: _____ Range: _____

Period: _____ Amplitude: _____

Important Part of Graph: Domain is Positive

1.) _____ 4.) _____

2.) _____ 5.) _____

3.) _____ looks like a _____

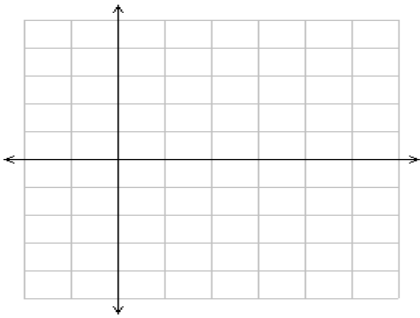
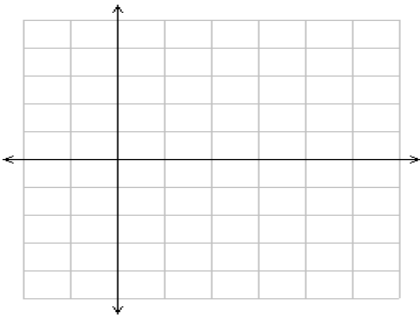
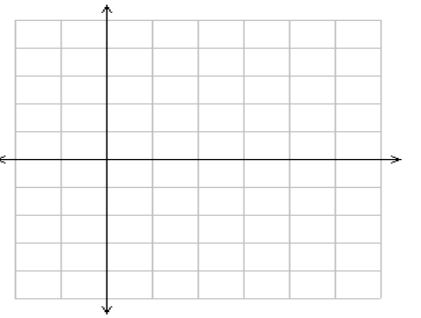
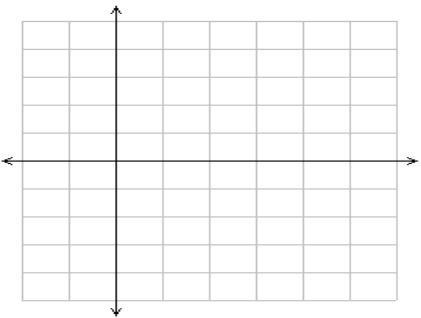
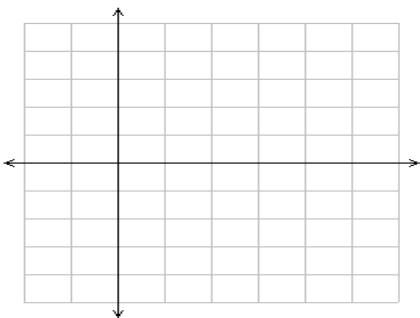
Graphing the Sine / Cosine Function: $y = f(x) = a \sin (bx \pm c) \pm d$ or $y = f(x) = a \cos (bx \pm c) \pm d$

- Each parameter (letter) affects the graph of $y = a \sin/\cos (bx \pm c) \pm d$ differently:
 - Parameter _____ affects the _____ of $f(x)$ where _____ is called the _____
 - Parameter _____ affects the _____ of $f(x)$ where the _____
 - Parameter _____ affects the _____ of $f(x)$ where _____
 - If _____ then the graph shifts to the _____
 - If _____ then the graph shifts to the _____
 - Parameter _____ affects the _____ of $f(x)$
 - If _____ then the graph shifts _____
 - If _____ then the graph shifts _____

Example 2: State the amplitude, period, and phase shift of each function.

Function	Amplitude	Period	Phase Shift	Vertical Shift
a.) $y = 3 \sin (2x) + 1$				
b.) $y = -2 \cos \left(x + \frac{\pi}{2} \right)$				
c.) $y = \sin (4x - \pi) - 3$				
d.) $y = \frac{1}{2} \cos \left(\frac{1}{4}x + \pi \right) + 2$				

Example 3: Graph each function by finding the amplitude, period, phase shift, and vertical shift.

a.) $y = 3 \sin (\frac{1}{2} x)$ 	b.) $y = \sin (x - \pi) + 2$ 	c.) $y = 2 \sin \left(2x + \frac{\pi}{2} \right) - 3$ 
d.) $y = \cos (4x) - 2$ 	e.) $y = 4 \cos (\frac{1}{2} x + \pi)$ 	f.) $y = 3 \cos \left(x - \frac{\pi}{2} \right) + 1$ 