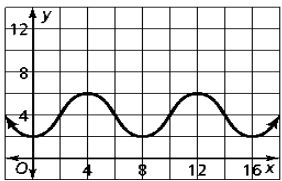
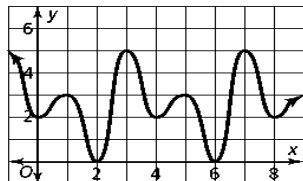
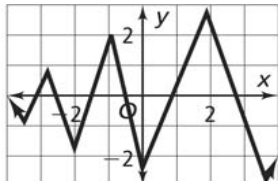
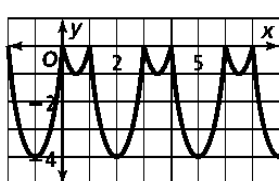


8-3 Graphing Basic Trigonometric Functions Notes

Periodic Function and Period

- One basic property of sine, cosine, and tangent functions is that they are _____
- A periodic function is a function that _____
at _____ where _____.
- A period (of a periodic function) is the _____ of _____

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

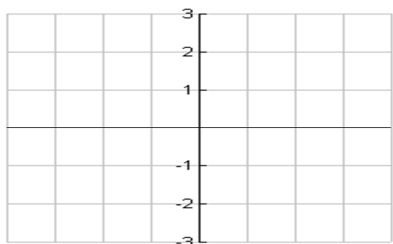
<p>a.</p>  <p>Periodic? Yes No Period = _____</p>	<p>b.</p>  <p>Periodic? Yes No Period = _____</p>	<p>c.</p>  <p>Periodic? Yes No Period = _____</p>	<p>d.</p>  <p>Periodic? Yes No Period = _____</p>
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Graphs of the Three Basic Trigonometric Functions

Sine Function

Make a table for x-values of $[-2\pi, 2\pi]$

x					
y					



Characteristics of the function:

Domain: _____

Range: _____

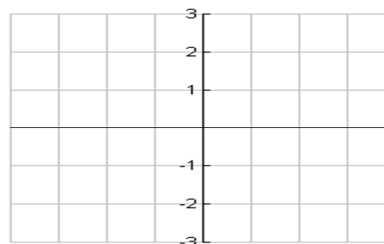
Period: _____

Amplitude: _____

Cosine Function

Make a table for x-values of $[-2\pi, 2\pi]$

x					
y					



Characteristics of the function:

Domain: _____

Range: _____

Period: _____

Amplitude: _____

Graphing Sine/Cosine/Tangent Function:

$$f(x) = a \sin(bx \pm c) \pm d \quad f(x) = a \cos(bx \pm c) \pm d \quad f(x) = a \tan(bx \pm c) \pm d$$

Each parameter (letter) affects the graph differently:

- Parameter _____ represents the _____ → describes how _____ the graph will be
- Parameter _____ represents the _____ → describes where the _____
- Parameter _____ represents the _____ → describes if the graph goes _____
- Parameter _____ represents the _____ → describes if the graph goes _____

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

Function	Amplitude	Period	Phase Shift	Vertical Shift
a. $f(x) = 3 \sin(x) + 1$				
b. $f(x) = 2 \cos\left(x + \frac{\pi}{2}\right) - 4$				
c. $f(x) = 4 \cos(x - \pi)$				
d. $f(x) = \sin\left(x + \frac{3\pi}{2}\right) + 5$				

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

<p>a. $f(x) = 4 \sin\left(x + \frac{\pi}{2}\right) - 2$</p> <div style="text-align: center; margin-top: 50px;"> </div>	<p>b. $f(x) = 3 \cos(x - \pi) + 1$</p> <div style="text-align: center; margin-top: 50px;"> </div>	<p>c. $f(x) = \cos\left(x - \frac{\pi}{2}\right) - 3$</p> <div style="text-align: center; margin-top: 50px;"> </div>
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