PreCalculus

Notes: 4.5 Graphs of Sine and Cosine Functions

Name_____

Date_____Block_____

The Sine Curve

x	$y = \sin x$
-2π	
$-\frac{3\pi}{2}$	
$-\pi$	
$-\frac{\pi}{2}$	
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	

The Basics

Domain:

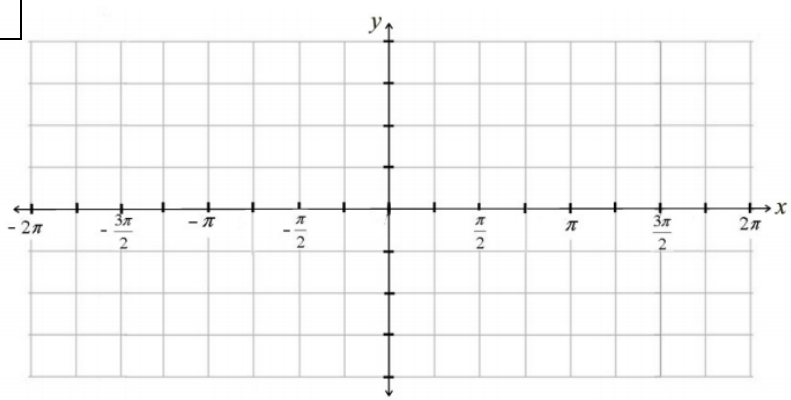
Range:

Period:

Even/Odd:

Asymptotes:

Key Points:



The Cosine Curve

x	$y = \cos x$
-2π	
$-\frac{3\pi}{2}$	
$-\pi$	
$-\frac{\pi}{2}$	
0	
$\frac{\pi}{2}$	
π	
$\frac{3\pi}{2}$	
2π	

The Basics

Domain:

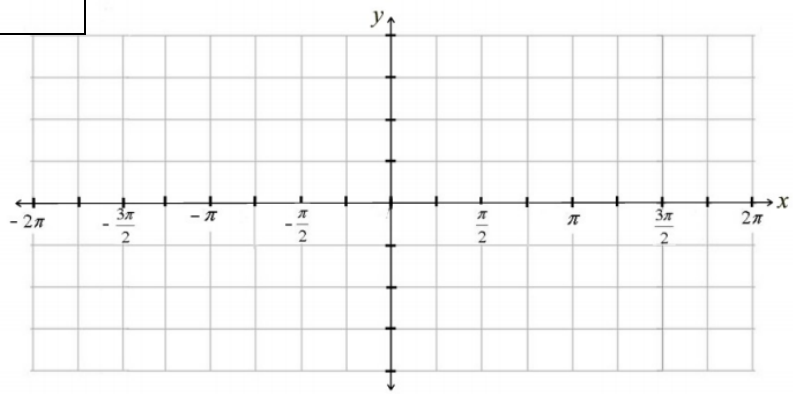
Range:

Period:

Even/Odd:

Asymptotes:

Key Points:



Transformations of Sine and Cosine Curves

Standard Form:

Amplitude:

Reflection:

Period:

Phase Shift (AKA Horizontal Translation):

Vertical Translation:

Midline:

Range:

Additional Notes:

In 1 – 3, identify the amplitude and period.

1. $y = \frac{1}{4}\sin 2\pi x$

2. $y = 2\cos 3x$

3. $y = \frac{1}{2}\sin \frac{\pi x}{3}$

In 4 – 7, describe the relationship between the graphs of *g* and *f*.

4. $f(x) = \sin x; g(x) = \sin(x - \pi)$

5. $f(x) = \cos 2x; g(x) = -\cos 2x$

6. $f(x) = \cos x; g(x) = \cos 2x$

7. $f(x) = \sin x; g(x) = \sin x + 3$

In 8 – 11, sketch the graph of each function. Identify any and all transformations of the parent graph first, and be sure to include two full periods.

8. $y = 2\sin 2x$

Amplitude:

Reflection:

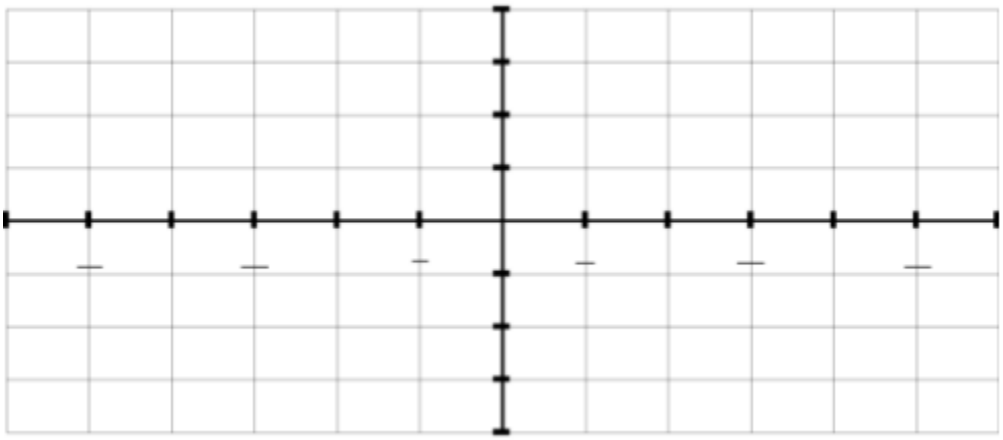
Period:

Phase Shift:

Vertical Translation:

Midline:

Range:



9. $y = 2\cos x - 3$

Amplitude:

Reflection:

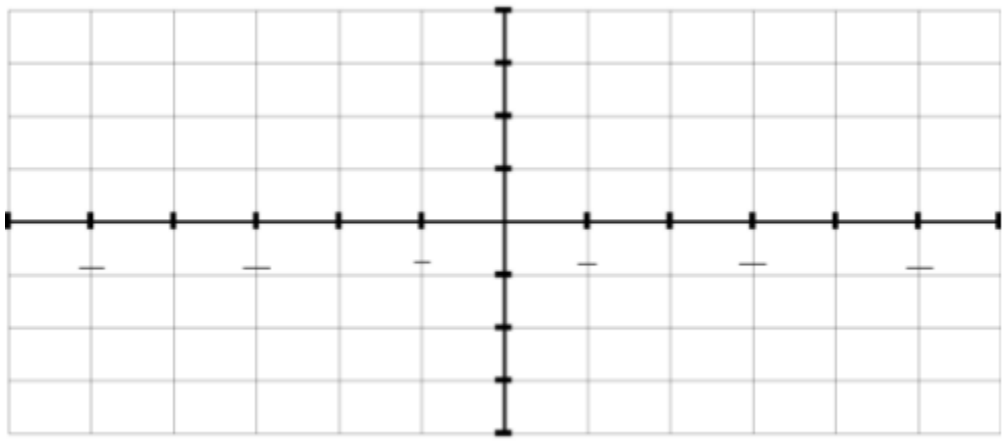
Period:

Phase Shift:

Vertical Translation:

Midline:

Range:



10. $y = \frac{1}{2}\sin(x - \pi)$

Amplitude:

Reflection:

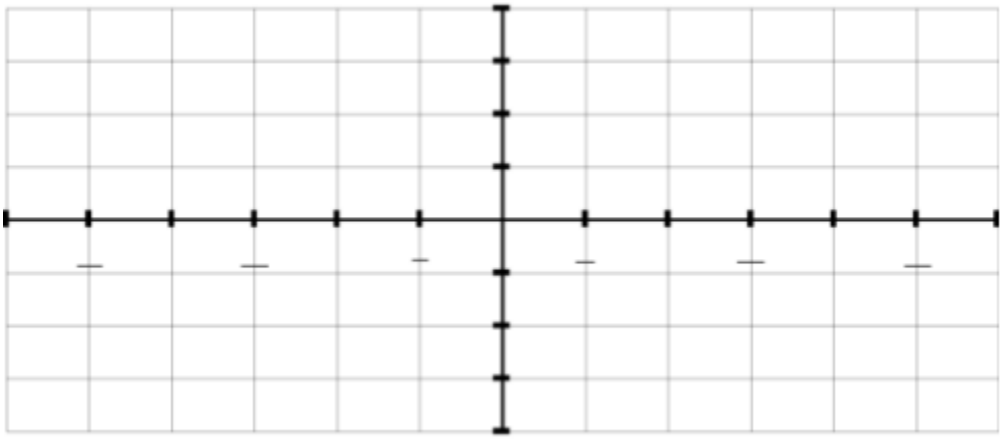
Period:

Phase Shift:

Vertical Translation:

Midline:

Range:



11. $y = -\cos\left(x + \frac{\pi}{2}\right)$

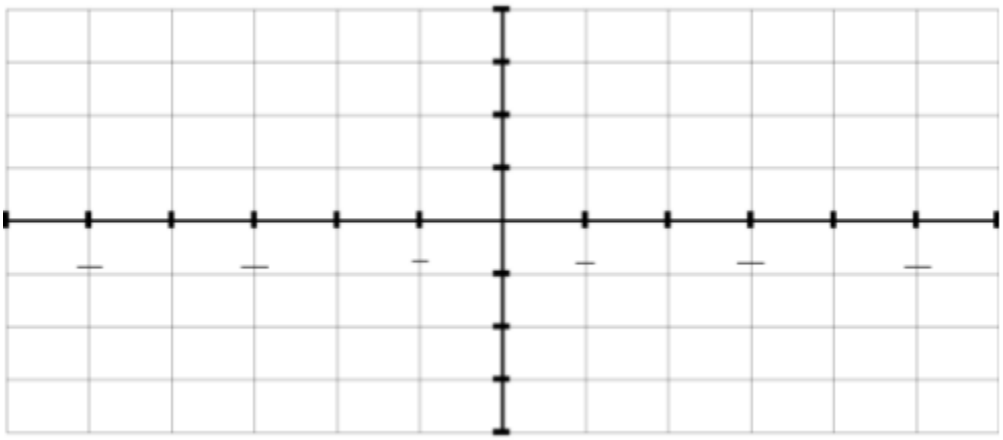
Amplitude:

Reflection:

Period:

Phase Shift:

Vertical Translation:

Midline:

Range: