L2 - Graphing Sine and Cosine Functions
MCR3U
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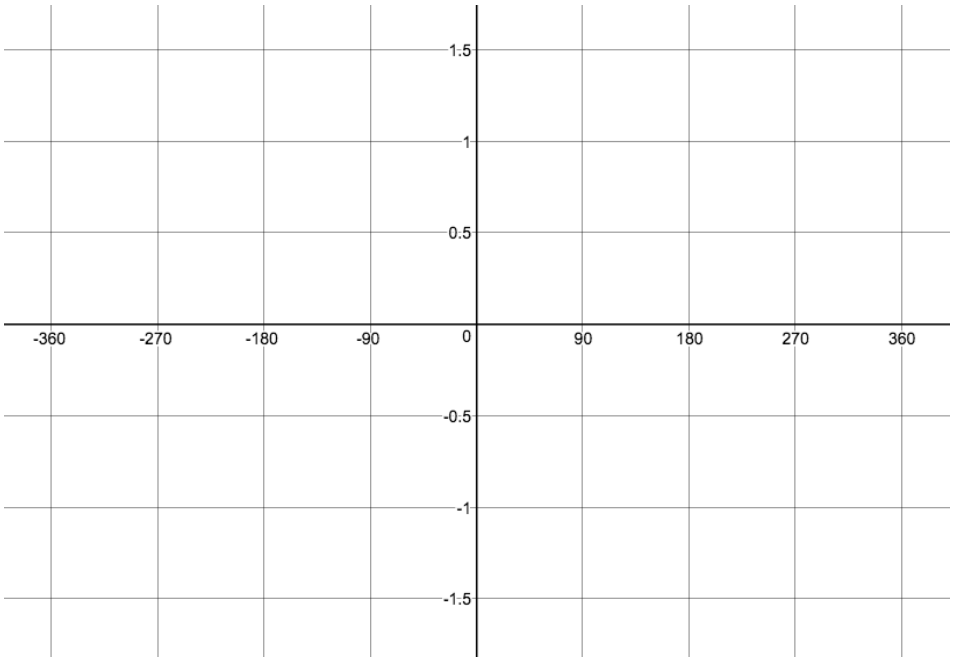
Section 1: Graphing Sine and Cosine

DESMOS demonstration

To graph sine and cosine, we will be using a Cartesian plane that has angles for x values.

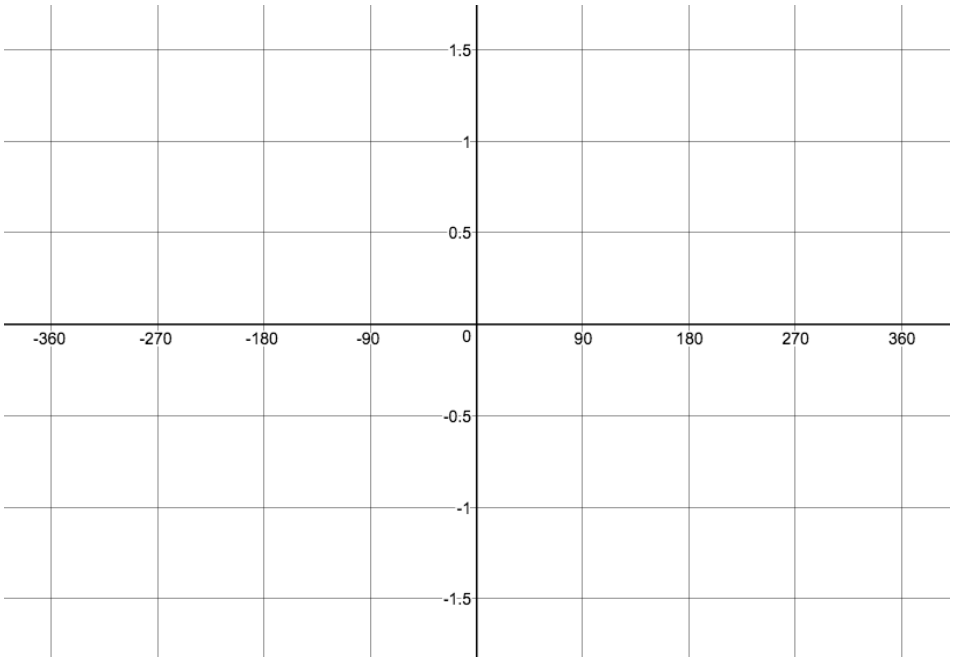
Example 1: Complete the following table of values for the function $f(x) = \sin(x)$. Use special triangles, the unit circle, or a calculator to find values for the function at $30°$ intervals. Use the table to graph the function.

x	$f(x)$
0	
30	
60	
90	
120	
150	
180	
210	
240	
270	
300	
330	
360	



Example 2: Complete the following table of values for the function $f(x) = \cos(x)$. Use special triangles, the unit circle, or a calculator to find values for the function at $30°$ intervals. Use the table to graph the function.

x	$f(x)$
0	
30	
60	
90	
120	
150	
180	
210	
240	
270	
300	
330	
360	



Section 2: Properties of Sine and Cosine Functions

Domain:

Range:

Period:

Amplitude:

Section 3: Transformations of the Sine and Cosine Functions

$y = a\sin[k(x-d)] + c$ Desmos Demonstration

a	k	d	c
Vertical stretch or compression by a factor of a. Vertical reflection if $a < 0$ $\|a\| = amplitude$	Horizontal stretch or compression by a factor of $\frac{1}{k}$. Horizontal reflection if $k < 0$. $\frac{360}{\|k\|} = period$	Phase shift $d > 0; shift\ right$ $d < 0; shift\ left$	Vertical shift $c > 0; shift\ up$ $c < 0; shift\ down$

Example 3: For the function $y = 3\sin[2(\theta + 60°)] - 1$, state the…

Amplitude:	Period:
Phase shift:	Vertical shift:
Max:	Min: