

Unit 3 (4.8) Graphing All Dilations and Translations

$$y = A \sin[B(\theta - C)] + D$$

A

B

C

D

Find the following then use the necessary information to write an equation of the trig function.

Sine curve in degrees with amplitude 4, horizontal dilation $\frac{1}{3}$, vertical translation 5 units

Amplitude: _____

Period: _____

Phase shift: _____

Midline/Sinusoidal axis: _____

Horizontal Dilation: _____

Vertical Translation: _____

Horizontal Translation: _____

Vertical Dilation: _____

Equation: _____

Cosine curve with vertical dilation 3, period 4π , horizontal translation $-\frac{\pi}{2}$ units

Amplitude: _____

Period: _____

Phase shift: _____

Midline/Sinusoidal axis: _____

Horizontal Dilation: _____

Vertical Translation: _____

Horizontal Translation: _____

Vertical Dilation: _____

Equation: _____

Sine curve with amplitude $\frac{1}{2}$, period 240° , reflected over the x-axis, phase shift 60° , midline $y = -1$

Amplitude: _____

Period: _____

Phase shift: _____

Midline/Sinusoidal axis: _____

Horizontal Dilation: _____

Vertical Translation: _____

Horizontal Translation: _____

Vertical Dilation: _____

Equation: _____

Example 1: State all transformations then graph one cycle. $y = 2 \sin 3\theta$

<p>Vertical Dilation (Amplitude): _____</p> <p>Horizontal Dilation: _____ Period: _____</p> <p>Vertical Translation: _____</p> <p>Horizontal Translation: _____</p>	
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Example 2: State all transformations then graph one cycle. $y = \cos 2\left(x - \frac{\pi}{4}\right)$

Vertical Dilation (Amplitude): _____	
Horizontal Dilation: _____ Period: _____	
Vertical Translation: _____	
Horizontal Translation: _____	

Example 3: State all transformations then graph one cycle. $y = \frac{1}{2} \sin(\theta) + 4$

Vertical Dilation (Amplitude): _____	
Horizontal Dilation: _____ Period: _____	
Vertical Translation: _____	
Horizontal Translation: _____	

Example 4: State all transformations then graph one cycle. $y = 4 \cos\left[2\left(x + \frac{\pi}{6}\right)\right] - 1$

Vertical Dilation (Amplitude): _____	
Horizontal Dilation: _____ Period: _____	
Vertical Translation: _____	
Horizontal Translation: _____	

Example 5: State all transformations then graph one cycle. $y = -3 \sin[4(\theta - 60^\circ)] + 2$

Vertical Dilation (Amplitude): _____	
Horizontal Dilation: _____ Period: _____	
Vertical Translation: _____	
Horizontal Translation: _____	

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Example 6: State all transformations then graph one cycle. $y = 2 \sin \left[\frac{1}{3} \left(x + \frac{\pi}{2} \right) \right] - 3$

Vertical Dilation (Amplitude): _____

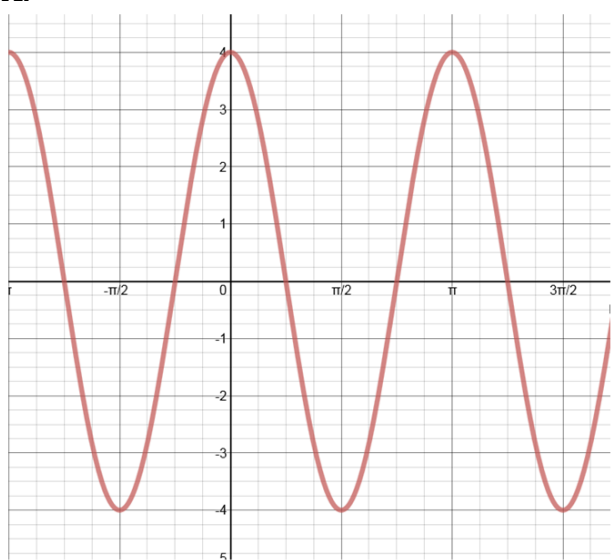
Horizontal Dilation: _____ Period: _____

Vertical Translation: _____

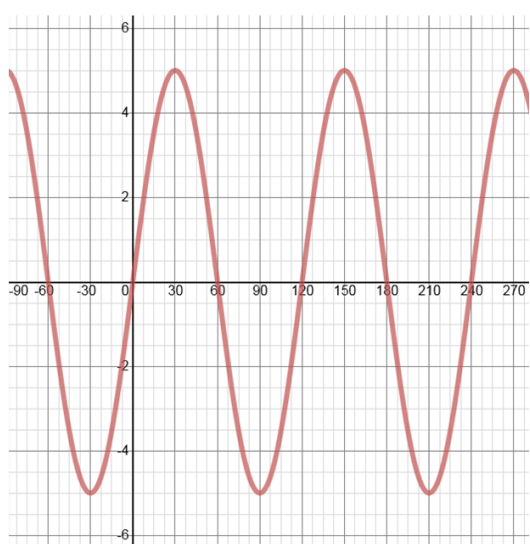
Horizontal Translation: _____

Example 7: Write both a sine and cosine equation that models the graph.

A.

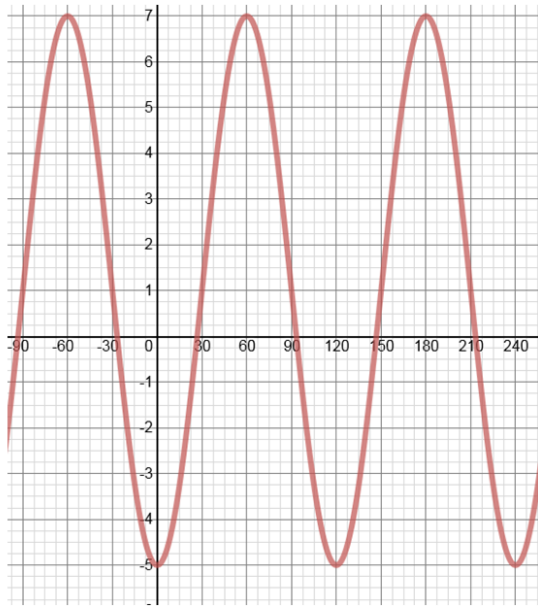


B.



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C.



D.

