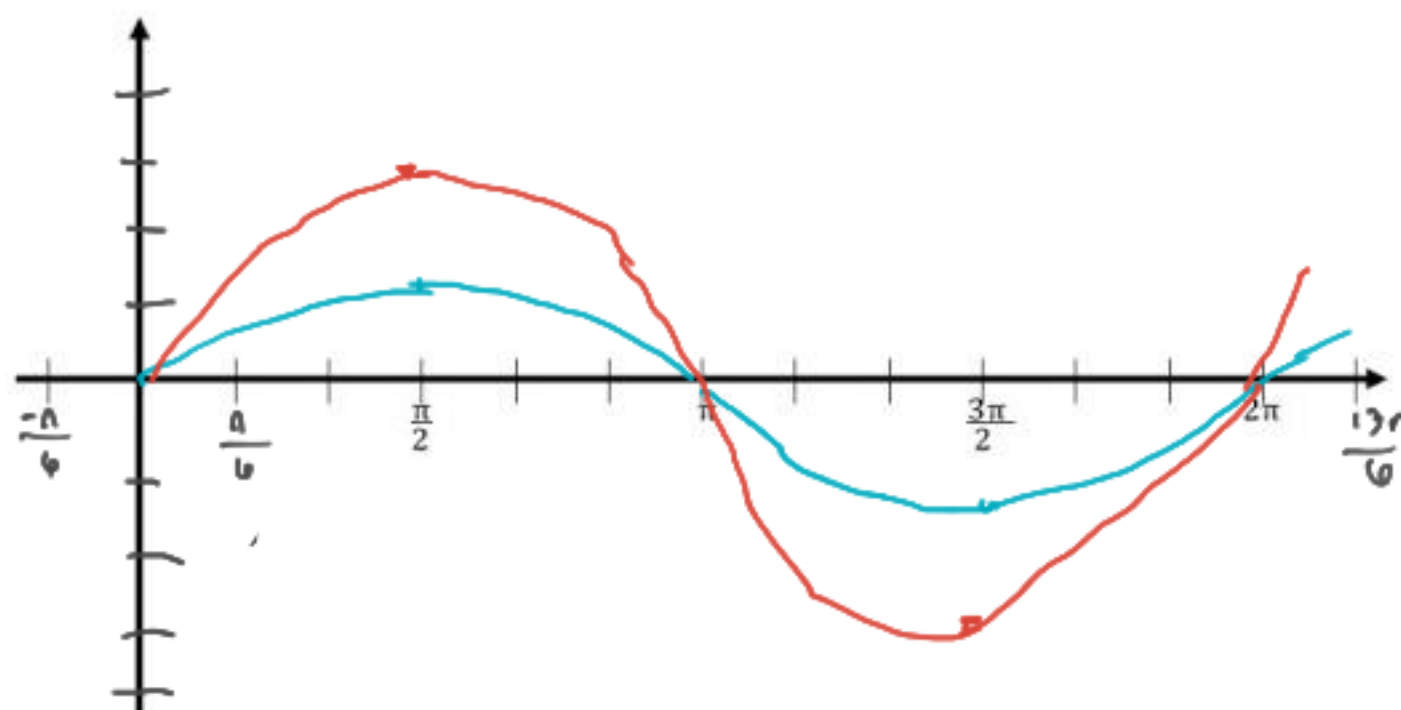


First, go to desmos and SET YOUR WINDOW (see Google Classroom) then graph the given functions. CAREFULLY reproduce the graphs here

Transformations of Sine and Cosine Graphs, Part 1

1. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = 3\sin(x)$ and sketch the graph below on the same axis, using contrasting colors if possible.



What affect did the "3" have on the graph of $y = \sin(x)$?

Use the TEXT tool to explain your answer here. **Note: the text responses are 50% of this assignment!** Use the vocabulary list in Google Classroom

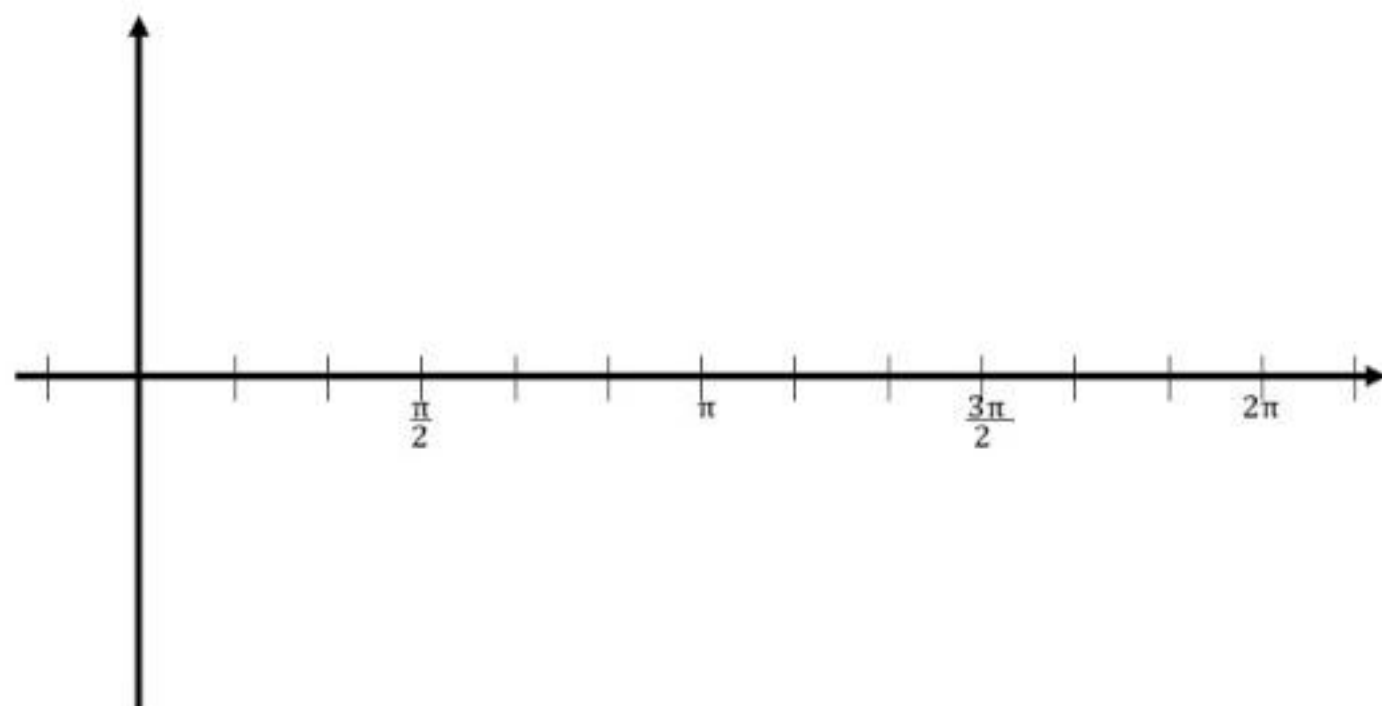
The 3 caused a stretch vertically by a factor of 3
The amplitude increased from 1 to 3. The period stayed the same.

Complete this section LAST, after you have sketched the graphs and written your sentence.

$y = \sin(x)$
period: 2 π
amplitude: 1

$y = 3\sin(x)$
period: 2 π
amplitude: 3

2. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = -\frac{1}{2}\sin(x)$ and sketch the graph below on the same axis, using contrasting colors if possible.



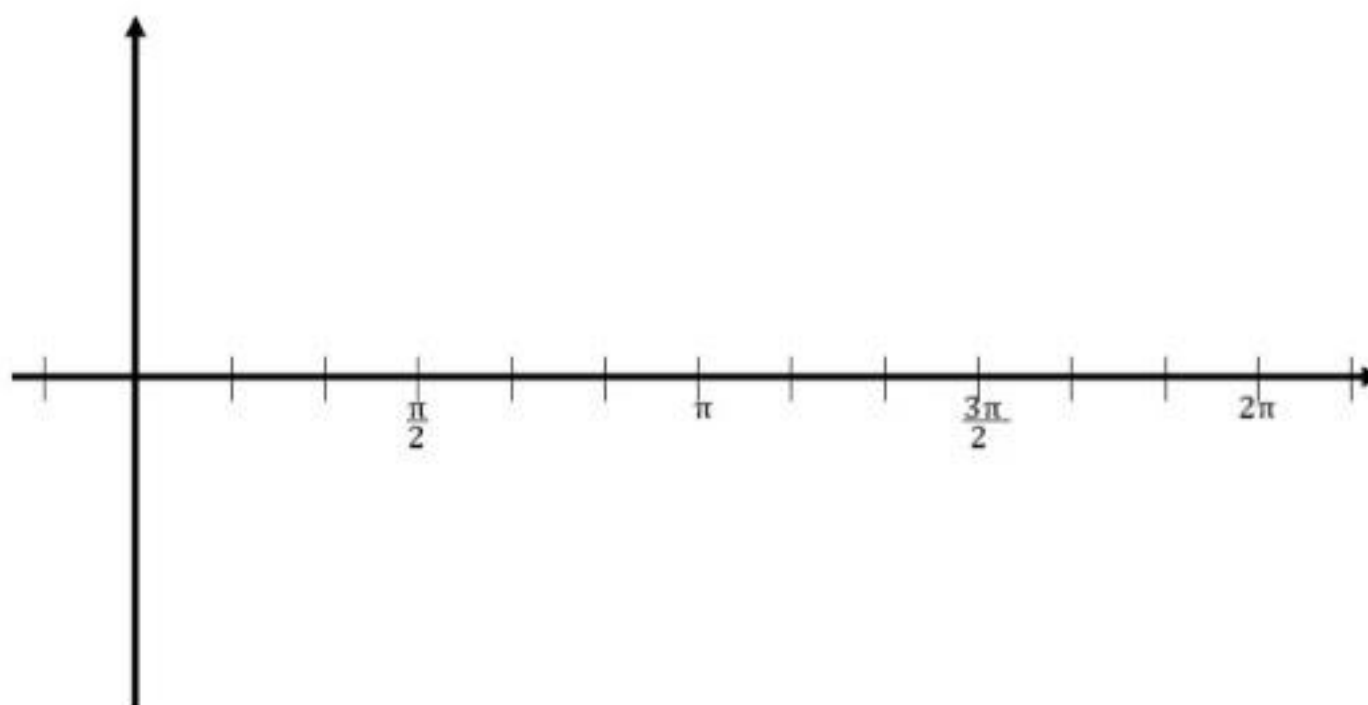
What affect did the " $-\frac{1}{2}$ " have on the graph of $y = \sin(x)$?

$y = \sin(x)$
period: _____
amplitude: _____

$y = -\frac{1}{2}\sin(x)$
period: _____
amplitude: _____



3. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = 4 \cos(x)$ and sketch the graph below on the same axis, using contrasting colors if possible.



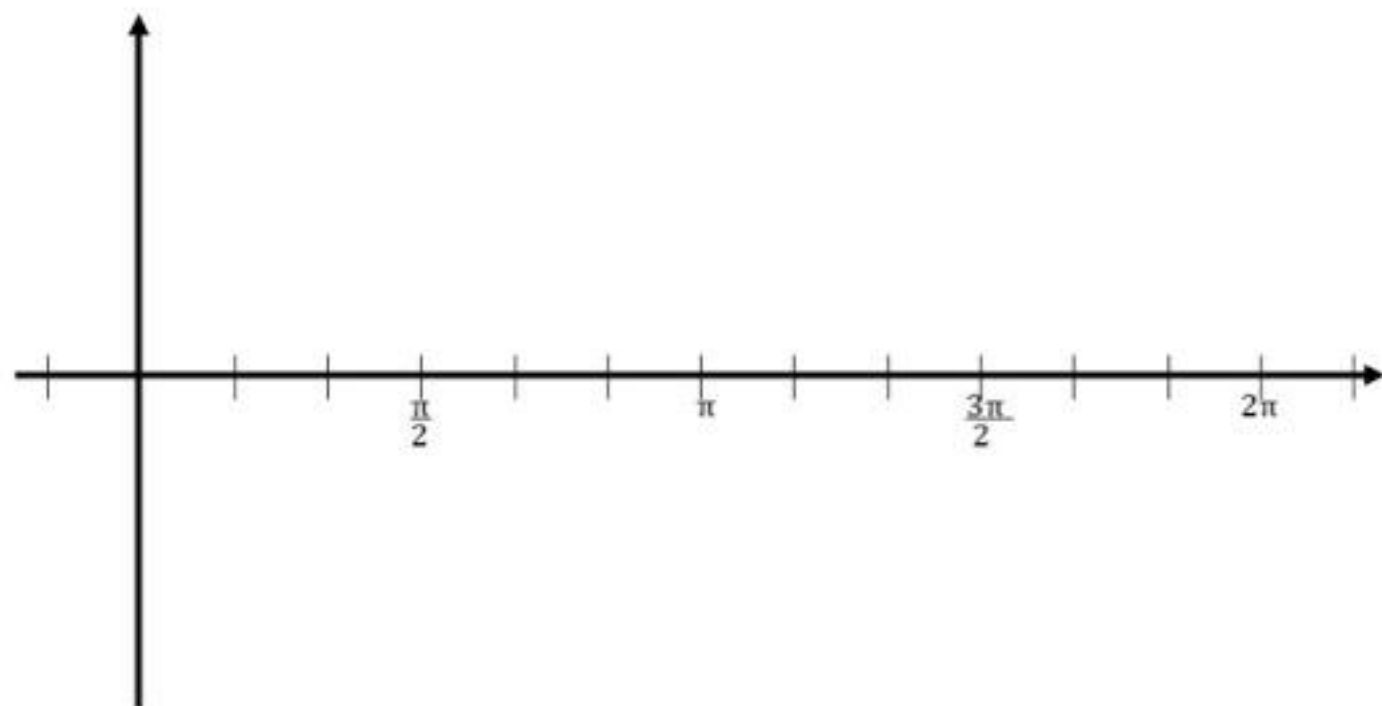
What affect did the "4" have on the graph of $y = \cos(x)$?

$y = \cos(x)$
period: _____
amplitude: _____

$y = 4\cos(x)$
period: _____
amplitude: _____



4. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = -\cos(x)$ and sketch the graph below on the same axis, using contrasting colors if possible.



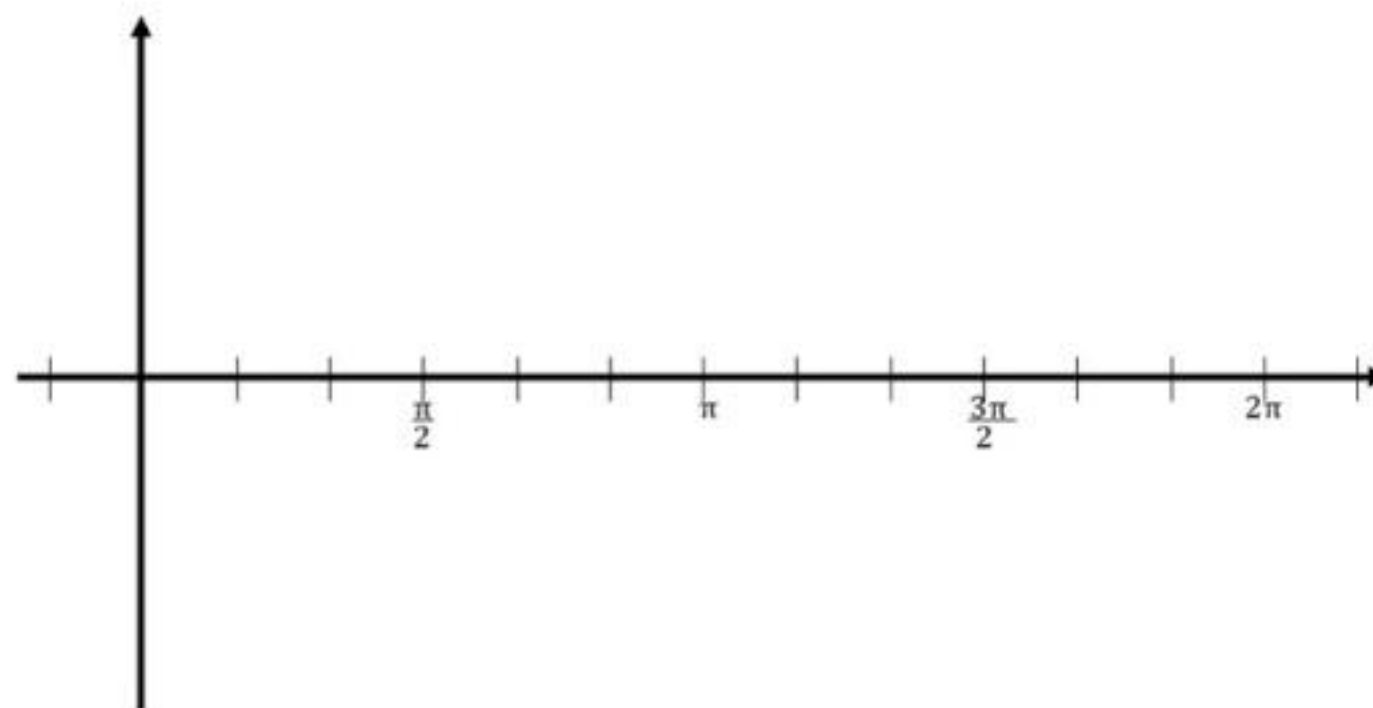
$y = \cos(x)$
period: _____
amplitude: _____

$y = -\cos(x)$
period: _____
amplitude: _____

What affect did the “-1” have on the graph of $y = \cos(x)$?



5. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = \sin(x) + 2$ and sketch the graph below on the same axis, using contrasting colors if possible.

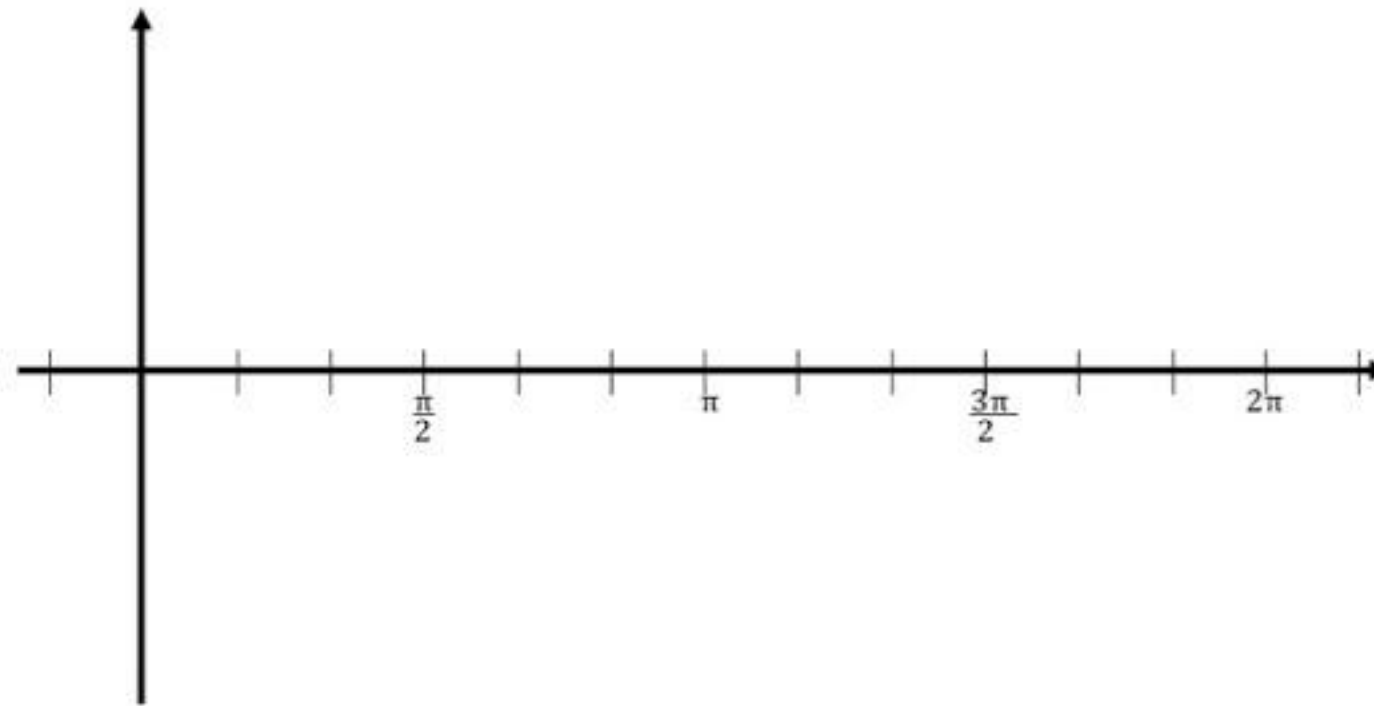


$y = \sin(x)$
period: _____
amplitude: _____

$y = \sin(x) + 2$
period: _____
amplitude: _____

What affect did the "+2" have on the graph of $y = \sin(x)$?

6. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = \cos(x) - 3$ and sketch the graph below on the same axis, using contrasting colors if possible.



What affect did the " -3 " have on the graph of $y = \cos(x)$?

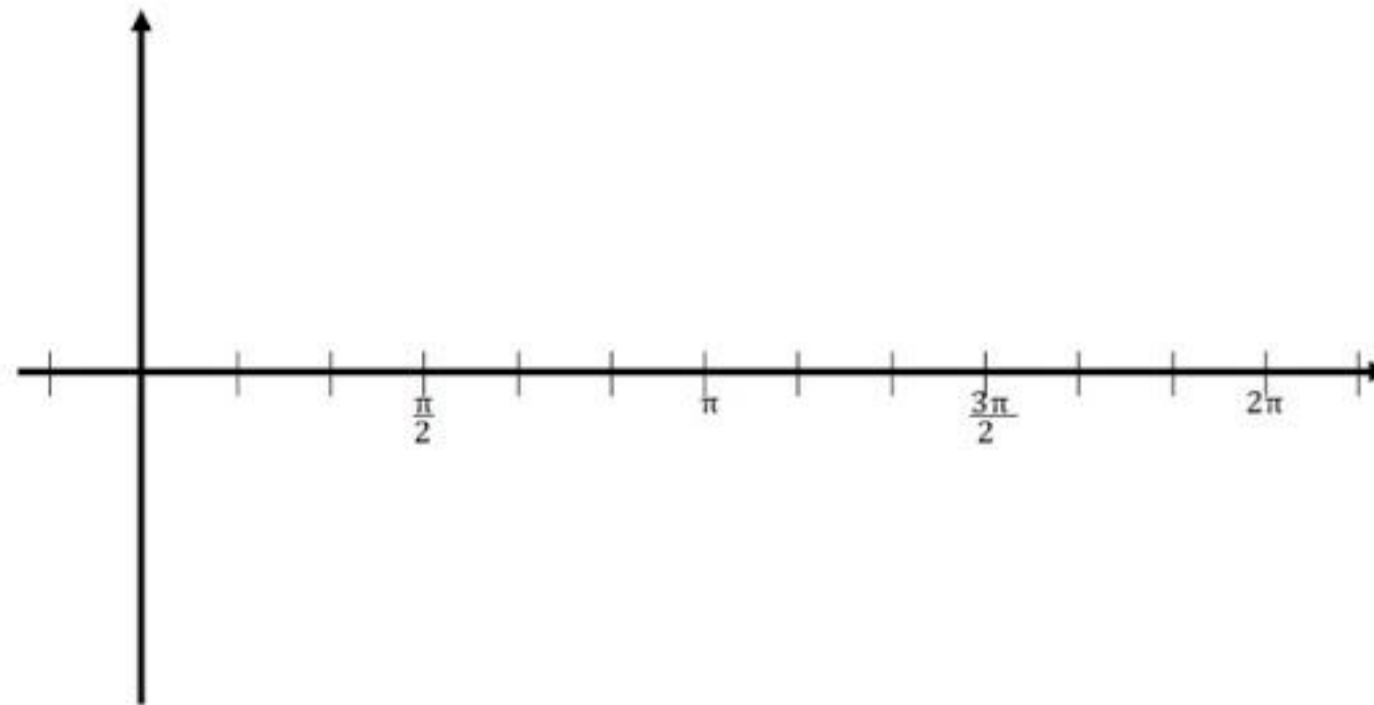
$y = \cos(x)$
period: _____
amplitude: _____

$y = \cos(x) - 3$
period: _____
amplitude: _____



Transformations of Sine and Cosine Graphs, Part 2

1. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = \cos(2x)$ and sketch the graph below on the same axis, using contrasting colors if possible.

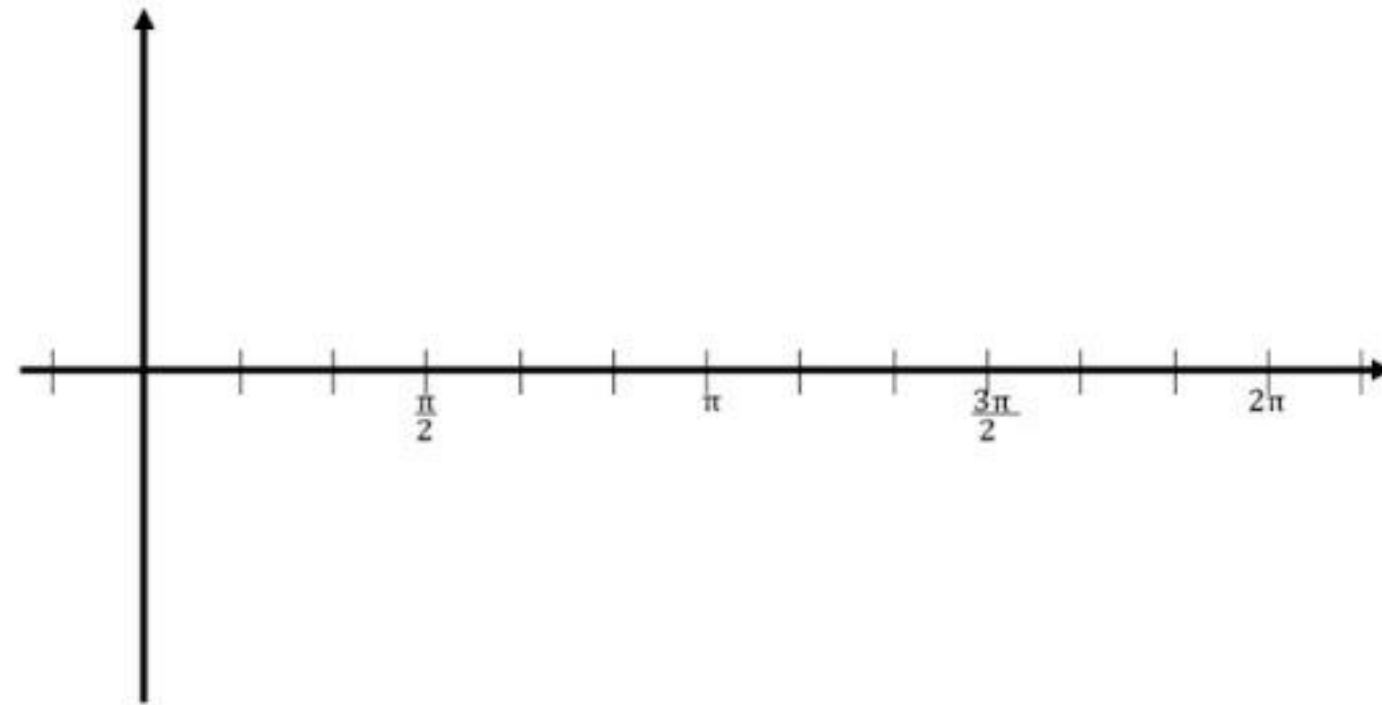


$y = \cos(x)$
period: _____
amplitude: _____

$y = \cos(2x)$
period: _____
amplitude: _____

What affect did the "2" have on the graph of $y = \cos(x)$?

2. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = \cos\left(\frac{1}{2}x\right)$ and sketch the graph below on the same axis, using contrasting colors if possible.



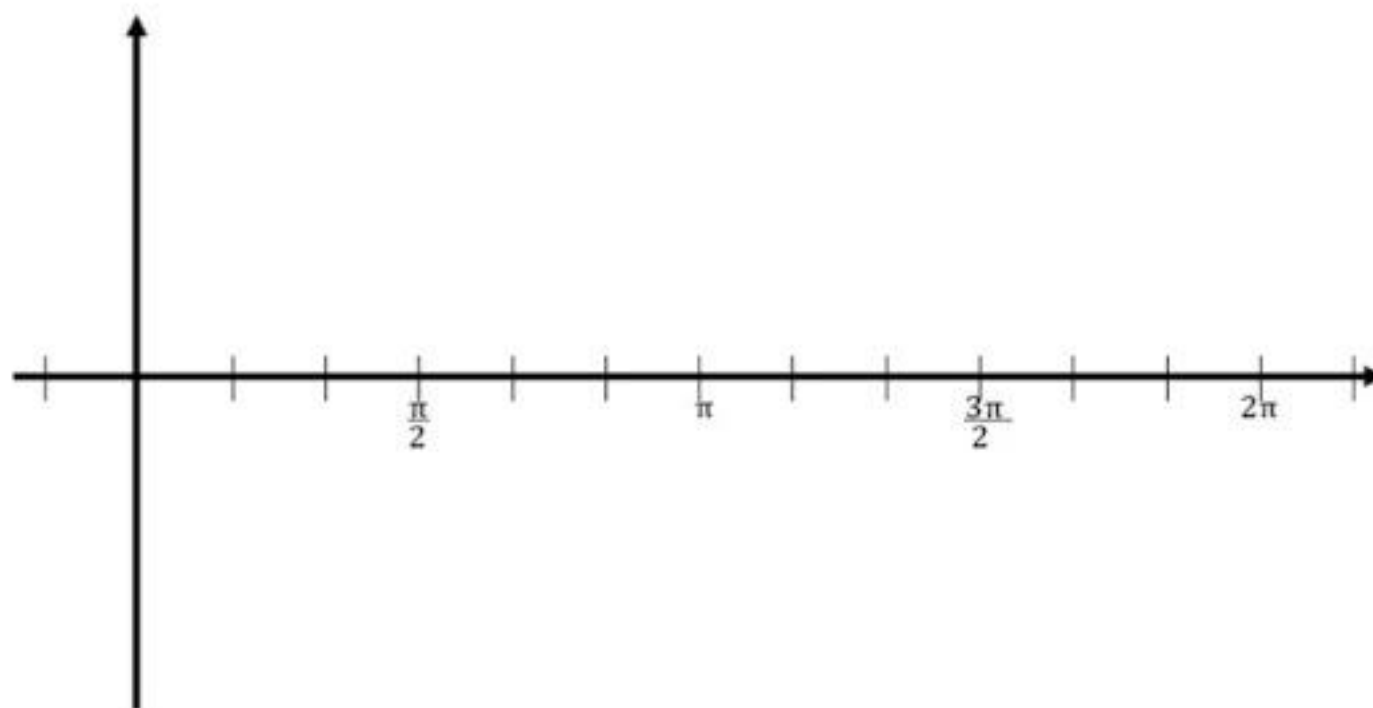
What affect did the " $\frac{1}{2}$ " have on the graph of $y = \cos(x)$?

$y = \cos(x)$
period: _____
amplitude: _____

$y = \cos\left(\frac{1}{2}x\right)$
period: _____
amplitude: _____



3. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = \sin(3x)$ and sketch the graph below on the same axis, using contrasting colors if possible.



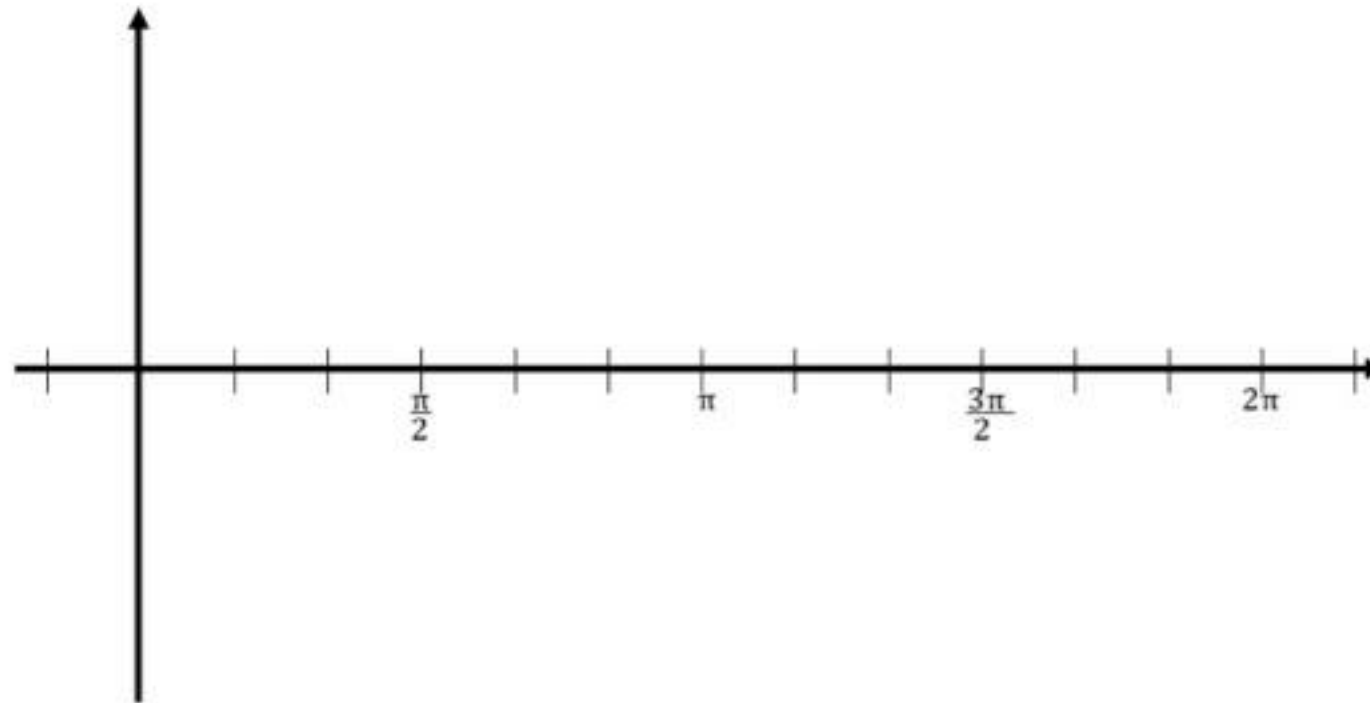
What affect did the "3" have on the graph of $y = \sin(x)$?

$y = \sin(x)$
period: _____
amplitude: _____

$y = \sin(3x)$
period: _____
amplitude: _____



4. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = \sin\left(\frac{1}{4}x\right)$ and sketch the graph below on the same axis, using contrasting colors if possible.



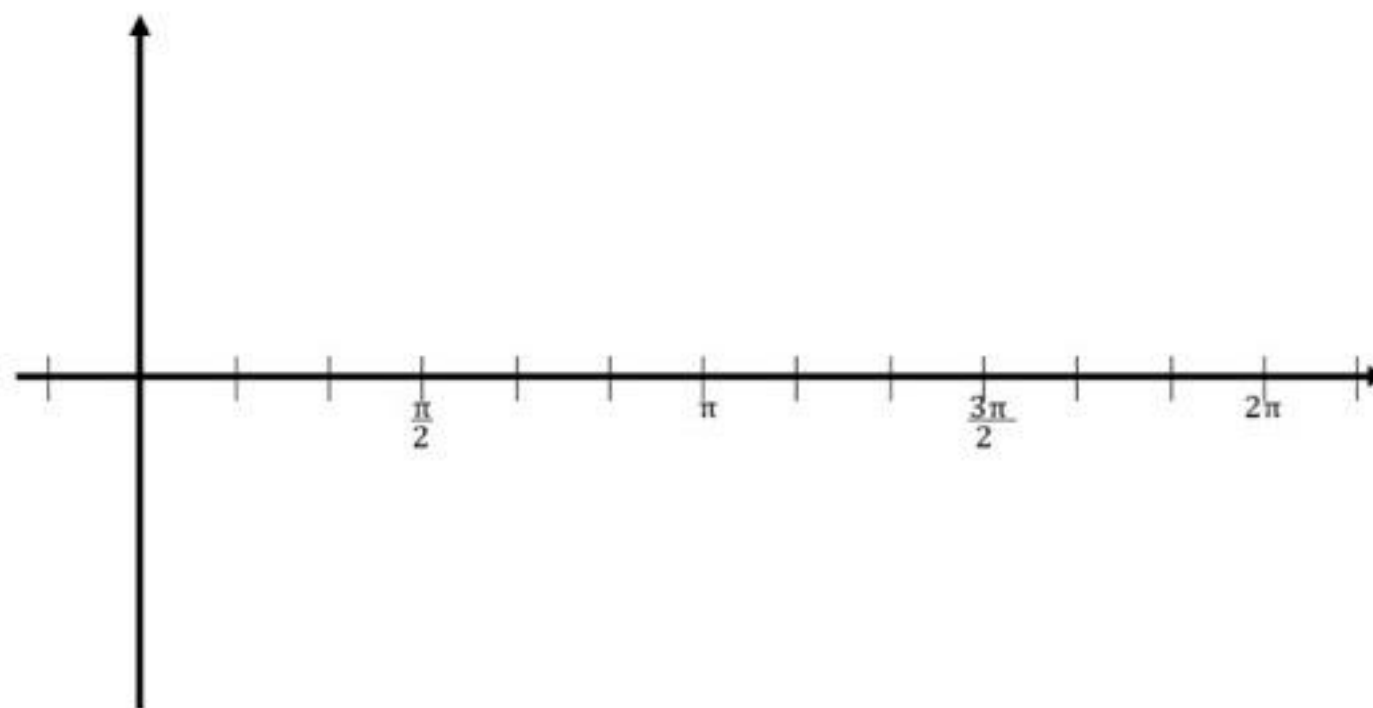
What affect did the " $\frac{1}{4}$ " have on the graph of $y = \sin(x)$?

$y = \sin(x)$
period: _____
amplitude: _____

$y = \sin\left(\frac{1}{4}x\right)$
period: _____
amplitude: _____



5. Using your graphing calculator, graph $y = \sin(x)$ and sketch the graph below. Then, graph $y = \sin\left(x - \frac{\pi}{4}\right)$ and sketch the graph below on the same axis, using contrasting colors if possible.



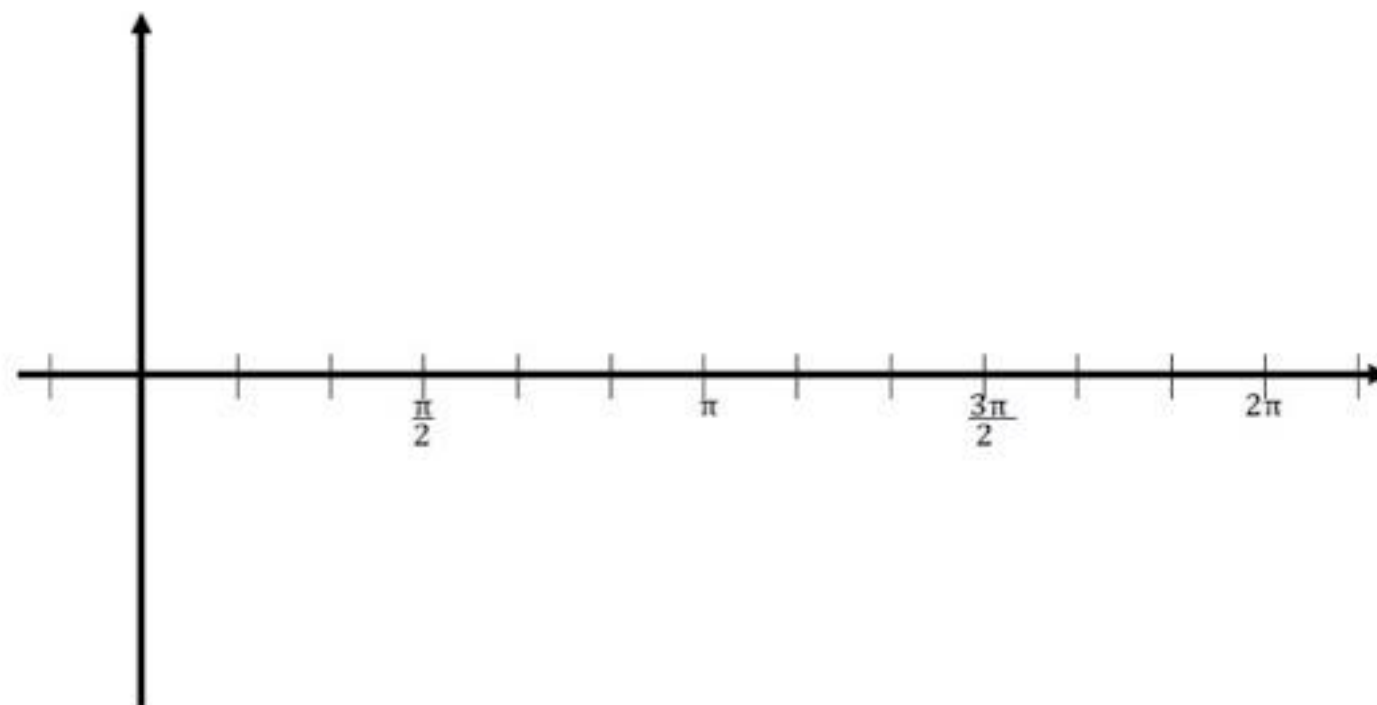
What affect did the " $-\frac{\pi}{4}$ " have on the graph of $y = \sin(x)$?

$y = \sin(x)$
period: _____
amplitude: _____

$y = \sin\left(x - \frac{\pi}{4}\right)$
period: _____
amplitude: _____



6. Using your graphing calculator, graph $y = \cos(x)$ and sketch the graph below. Then, graph $y = \cos\left(x + \frac{2\pi}{3}\right)$ and sketch the graph below on the same axis, using contrasting colors if possible.



What affect did the " $\frac{2\pi}{3}$ " have on the graph of $y = \cos x$?

$y = \cos(x)$
period: _____
amplitude: _____

$y = \cos\left(x - \frac{2\pi}{3}\right)$
period: _____
amplitude: _____

