

Test 2 Pretest

On the graphing portion of the test, on some exercises I will ask a “progression” of graphing functions.

For example, instead of asking you to graph just $y = -2 + 3\cos\left(2x + \frac{\pi}{4}\right)$, I’ll have you first graph

$y = 3\cos(2x)$ Then I’ll have you graph $y = 3\cos\left(2x + \frac{\pi}{4}\right)$ a horizontal shift of the first graph, and then

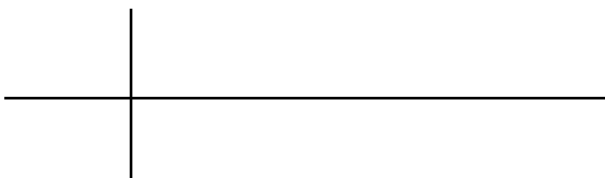
I’ll have you graph $y = -2 + 3\cos\left(2x + \frac{\pi}{4}\right)$ a vertical shift of the second graph.

Also, I will put an interval on which to graph each function so that we are all graphing it the same. This interval might be one full period, one and a half periods, or two periods.

Here is what it may look like:

- Graph each function on the given interval. Be certain to mark each important point along the x -axis and y -axis. You may scale each axis separately to give yourself enough room. (Notice how these functions are related and progress from one to the next.)

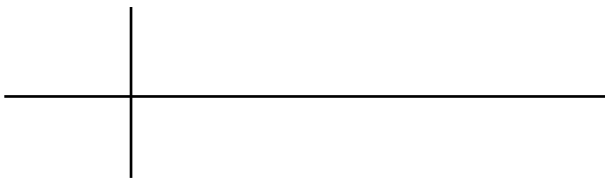
a) $y = 3\cos(2x)$ on the interval $\left[-\frac{\pi}{4}, \frac{5\pi}{4}\right]$ Period:



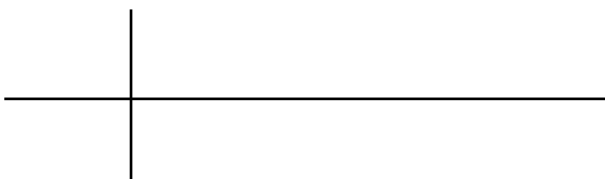
(The x - y -axes that I give you will actually be larger than this so that there’s more room to write.)

b) $y = 3\cos\left(2x + \frac{\pi}{4}\right)$ on the interval $\left[-\frac{3\pi}{8}, \frac{9\pi}{8}\right]$ Phase Shift:

(Notice that this interval includes the horizontal shift.)

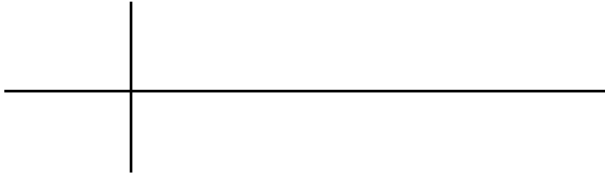


c) $y = -2 + 3\cos\left(2x + \frac{\pi}{4}\right)$ on the interval $\left[-\frac{3\pi}{8}, \frac{9\pi}{8}\right]$ Vertical Shift:

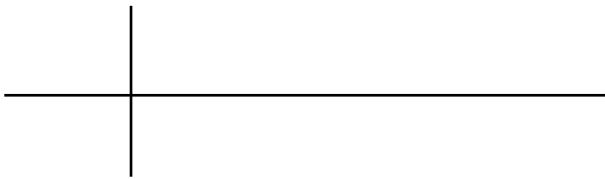


2. Graph each function on the given interval. Be certain to mark each important point along the x -axis and y -axis. You may scale each axis separately to give yourself enough room. (Notice how these functions are related and progress from one to the next.)

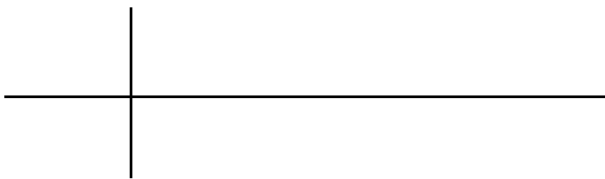
a) $y = -2\sin\left(\frac{1}{2}x\right)$ on the interval $[-2\pi, 6\pi]$ Period:



b) $y = -2\sin\left(\frac{1}{2}x - \frac{\pi}{2}\right)$, on the interval $[-\pi, 7\pi]$ Phase Shift:



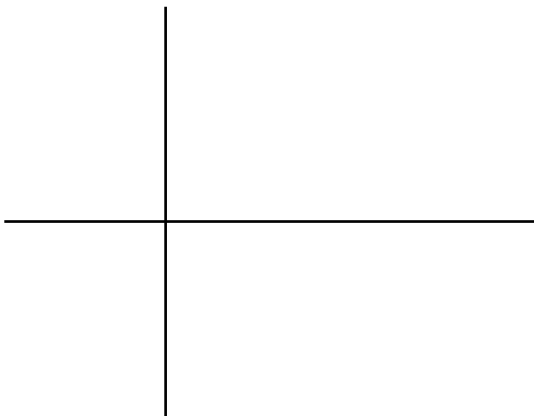
c) $y = -2\csc\left(\frac{1}{2}x - \frac{\pi}{2}\right)$ on the interval $[-\pi, 7\pi]$



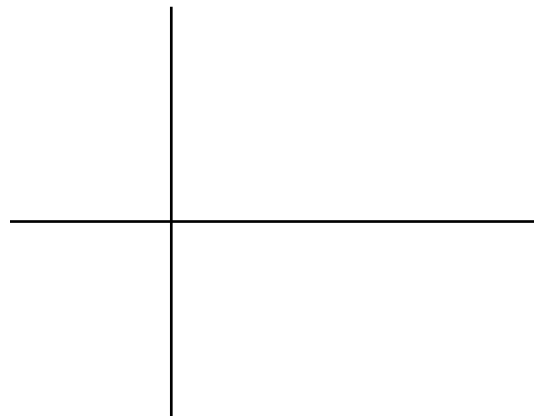
For the tangent and cotangent functions, I'll ask you to draw two full periods, but I won't give you an interval as I have on the previous exercises.

3. Graph two periods of each function.

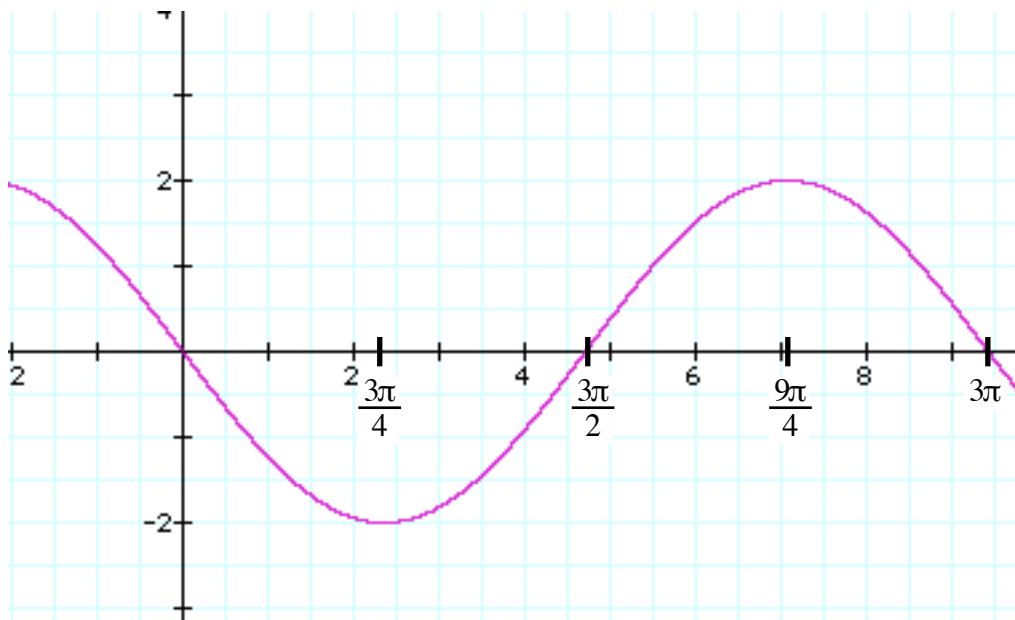
a) $y = -\tan(3x)$



b) $y = \cot\left(\frac{1}{2}x\right)$



4. Identify the function shown. Write it in the form of either $y = A \sin(Bx)$ or $y = A \cos(Bx)$



The test will also include exercises regarding the inverse functions, such as those found in Section 4.7, page 246, #5 - 24 all.

From Chapter 3, there will be a number of exercises very similar to those on the recent quiz and handout. A link to the handout can be found in the Ch. 3 & 4 homework section of our Math 36 web page.