

My signature on this assessment confirms I have used no outside resources and adhered to all assessment protocols assigned to this part of the daily grade/quiz/test/exam.

Accel Precalc

Quiz #12

Name \_\_\_\_\_

Unit #6: Graphs and Inverses of Trig Functions [85 pts]

Part I: NO UNIT CIRCLE. GRAPHING CALCULATOR NEEDED.

❖ Calculator should be in Radian mode for #1 & 5.

1. Find the sinusoidal equation for the given combination. Round values to nearest thousandths [15 pts]

WINDOW WHEN GRAPHING FUNCTIONS:

X values  $[-2\pi, 2\pi]_{\frac{\pi}{4}}$

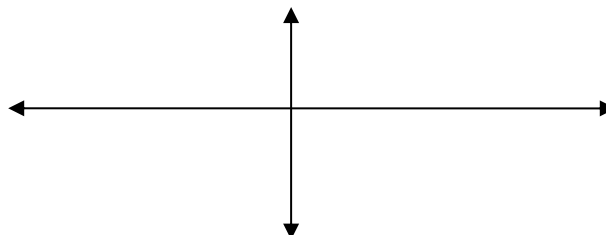
Y values  $[-10, 10]_1$

WINDOW WHEN CHECKING ANSWER:

X values  $[-\pi, \pi]_{\frac{\pi}{4}}$

Y values  $[-10, 10]_1$

$f(x) = 3\sin(2x - 1) + 4\cos(2x + 3)$



$f(x) =$  \_\_\_\_\_

max = \_\_\_\_\_ min = \_\_\_\_\_ zero<sub>1</sub> = \_\_\_\_\_ zero<sub>2</sub> = \_\_\_\_\_

WORK:

A	B	C	D

Evaluate. For angle answers, you may respond in degrees or decimal radians, both rounded to nearest hundredth. Be sure to include unit with angle answer. For ratio answers, round to nearest hundredth. [5 pts each]

2.  $\cos^{-1}(-0.43)$

3.  $\cot^{-1}(3.2)$

4.  $\csc^{-1}(-1.58)$

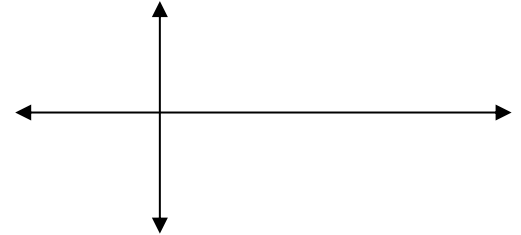
\_\_\_\_\_

\_\_\_\_\_

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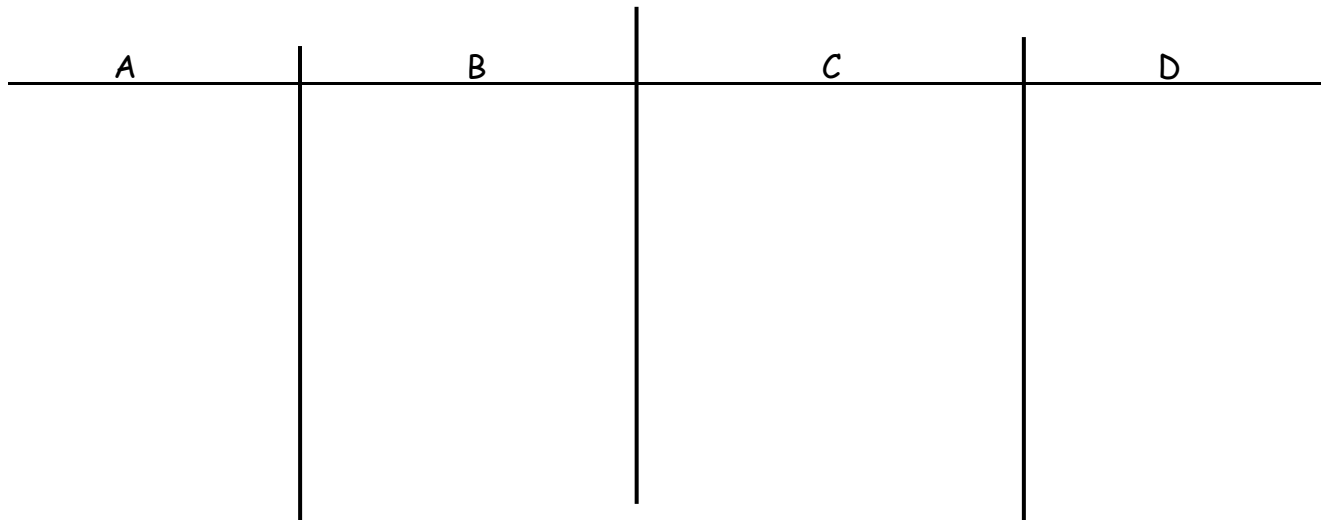
5. The top of a spring is attached to the ceiling and the bottom is attached to a weight which is oscillating vertically so that the weight reaches the maximum distance from the ceiling every 8 seconds. Find a **sinusoidal function** in the form  $f(t) = A\sin[B(t - h)] + k$  where  $t$  is the time in seconds and  $f(t)$  is the distance of the weight from the ceiling in feet. The maximum distance of the weight from the ceiling is 8 ft and the minimum distance from the ceiling is 2 ft, which occurs at  $t = 0$  seconds. **Round values to nearest thousandth if needed. Must show work to support all values. [15 pts]**

Use the viewing window: X values  $[-2, 12]_1$  Y values  $[-2, 10]_1$



$f(t) =$  \_\_\_\_\_

WORK:



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**Part II: UNIT CIRCLE ALLOWED. 4 Function Calculator only.**

Evaluate. For angle answers, you may respond in degrees or  $\pi$  radians. Be sure to include unit with angle answer. Give exact value for ratio answers. [5 pts each]

6.  $\cos^{-1}(-1)$  \_\_\_\_\_      7.  $\tan^{-1}\left(\frac{-\sqrt{3}}{3}\right)$  \_\_\_\_\_

8.  $\csc^{-1}(2)$  \_\_\_\_\_      9.  $\sin^{-1}\left(\sin\left(\frac{2\pi}{3}\right)\right) =$  \_\_\_\_\_

10.  $\cos\left(\sin^{-1}\left(\frac{-1}{2}\right)\right) =$  \_\_\_\_\_      11.  $\tan^{-1}\left(\cot\left(\frac{7\pi}{6}\right)\right) =$  \_\_\_\_\_

12.  $\sec\left(\cot^{-1}\left(\frac{12}{5}\right)\right) =$  \_\_\_\_\_      13.  $\tan\left(\cos^{-1}\left(-\frac{3}{7}\right)\right) =$  \_\_\_\_\_

14.  $\cos^{-1}\left(\sin\left(\frac{-\pi}{4}\right)\right) =$  \_\_\_\_\_

