

/ 8 Points]

DETAILSPRACTICE ANOTHER

(a) READ AND COMPLETE THE FOLLOWING.

SPreCalc8 5.3.004.

The sine curve $y = a \sin(k(x - b))$ has amplitude period and horizontal shift The sine curve

$y = 6 \sin\left(5\left(x - \frac{\pi}{4}\right)\right)$ has amplitude period and horizontal shift ; an appropriate interval on which to graph one

period is $\left(\frac{\pi}{4}, \right.$.

Graph one period of $y = 6 \sin\left(5\left(x - \frac{\pi}{4}\right)\right)$ and label the x -coordinates of the key points used for graphing the function. (Select the correct figure.)

2

Consider the following.

$$f(x) = -3 + \cos(x)$$

3

Graph the function.



✖

State the domain and range. (Write your answers using interval notation.)

domain

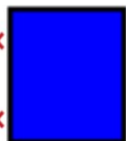


✖

range



✖



Consider the following.

$$f(x) = -3 + \sin(x)$$

4

Graph the function. (Select the correct figure.)

State the domain and range. (Write your answers using interval notation.)

domain



x

range



x



Find the amplitude and period of the function.

$$y = \cos(4x)$$

amplitude



period



5

Sketch the graph of the function.

Find the amplitude and period of the function.

$$y = -\sin(5x)$$

6

amplitude



period



Sketch the graph of the function. (Select the correct figure.)

Find the amplitude and period of the function.

$$y = 2 \cos\left(\frac{1}{6}x\right)$$

7

amplitude



period



Sketch the graph of the function. (Select the correct figure.)

8

Graph one complete period. (Select the correct figure.)

Find the amplitude, period, and horizontal shift of the function.

$$y = \sin\left(\frac{1}{4}\left(x + \frac{\pi}{5}\right)\right)$$

amplitude



period



horizontal shift



A graphing device is recommended.

9

Consider the following figures.

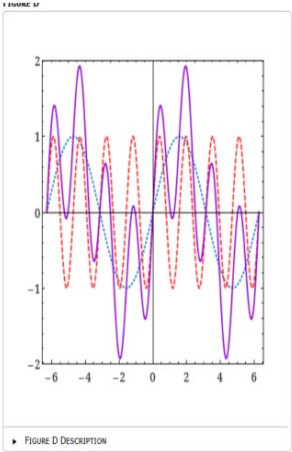
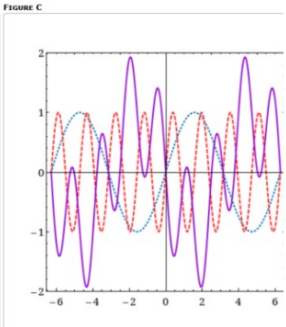
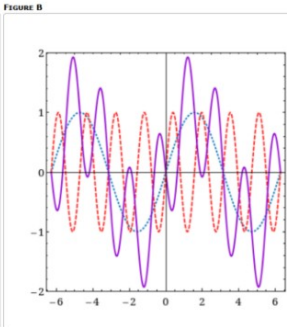
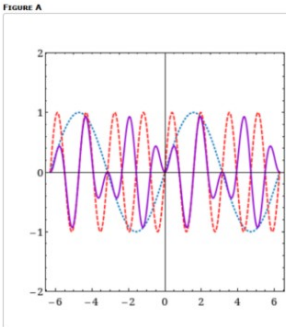
$$y = \sqrt{\cos(5\pi x)}$$

draw it

A graphing device is recommended.

Consider the following functions

10



Graph f , g , and $f + g$ on a common screen to illustrate graphical addition. (Select the correct figure.)

A graphing device is recommended.

11

Graph the three functions on a common screen.

$$y = x, \quad y = -x, \quad y = x \cos(9x)$$

How are the graphs related?

A graphing device is recommended.

Graph the three functions on a common screen.

$$y = \sqrt{x}, \quad y = -\sqrt{x}, \quad y = \sqrt{x} \sin(3\pi x)$$

How are the graphs related?

12

A graphing device is recommended.

Find the maximum and minimum values of the function, rounded to two decimal places.

$$y = x - 2 \sin(x) \quad 0 \leq x \leq 2\pi$$

13

maximum value



minimum value

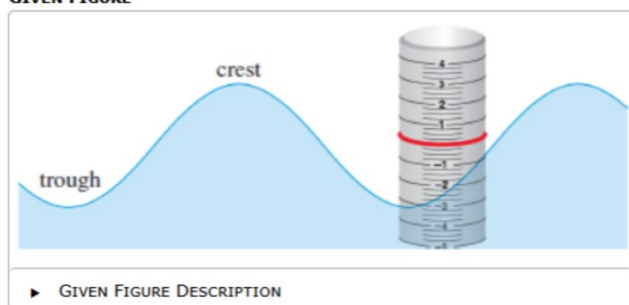


As a wave passes by an offshore piling, the height of the water is modeled by the function

$$h(t) = 2 \cos\left(\frac{\pi}{20}t\right)$$

where $h(t)$ is the height in feet above mean sea level at time t seconds. (See the following figure.)

GIVEN FIGURE



- (a) Find the period of the wave (in seconds).

- (b) Find the wave height (in ft), that is, the vertical distance between the trough and the crest of the wave.