

WeBWork Assignment Homework11 is due : 05/21/2016 at 04:12pm EDT.

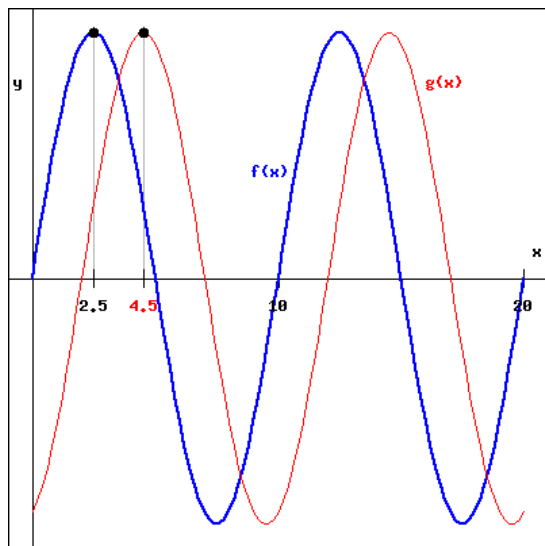
Reference: Axler, Precalculus, 2nd ed, Sections 6.1 and 6.2

Here's the list of **functions and symbols** that WeBWork understands.

1. (1 pt) Suppose $y = 9 \sin(5(t + 9)) - 16$. In your answers, enter *pi* for π .

- (a) The midline of the graph is the line with equation _____
- (b) The amplitude of the graph is _____
- (c) The period of the graph is _____

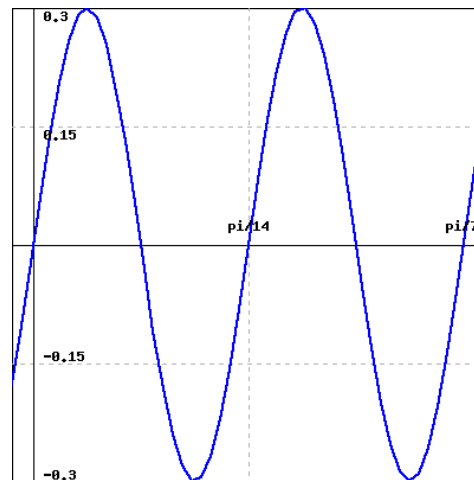
2. (1 pt) Below is the graph of the function $f(x) = 10 \sin(\frac{\pi}{5}x)$ in blue, and a second sinusoidal function $y = g(x)$ in red, which is a horizontal shift of $y = f(x)$. Find a formula for the function $g(x)$.
 $g(x) =$ _____



(Click on graph to enlarge)

3. (1 pt) Find a formula for the trigonometric function graphed below. Use x as the independent variable in your formula.

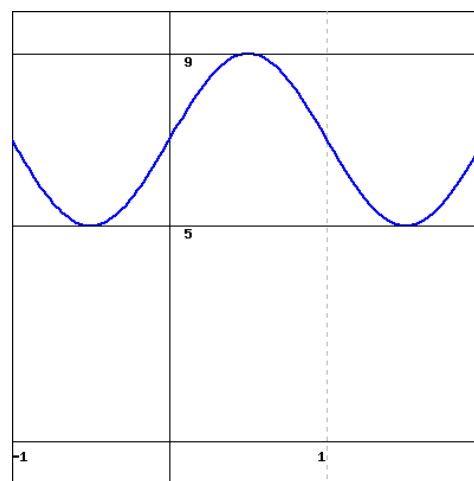
$f(x) =$ _____



(Click on graph to enlarge)

4. (1 pt) Find a possible formula for the trigonometric function graphed below. Use x as the independent variable in your formula.

$f(x) =$ _____



(Click on graph to enlarge)

5. (1 pt) The pressure P (in pounds per square foot), in a pipe varies over time. Five times an hour, the pressure oscillates from a low of 80 to a high of 280 and then back to a low of 80. The pressure at time $t = 0$ is 80. Let the function $P = f(t)$ denote the pressure in pipe at time t **minutes**.

Find a possible formula for the function $P = f(t)$ described above.

$f(t) =$ _____

6. (1 pt)

Convert the following rectangular coordinates into polar coordinates. Always choose $0 \leq \theta < 2\pi$.

(a) (0, 5)

$r =$ _____, $\theta =$ _____.

(b) $(-1, -\sqrt{3})$

$r = \underline{\hspace{2cm}}, \theta = \underline{\hspace{2cm}}.$

(c) $(-\sqrt{3}, -1)$

$r = \underline{\hspace{2cm}}, \theta = \underline{\hspace{2cm}}.$

(d) $(4, -3)$

$r = \underline{\hspace{2cm}}, \theta = \underline{\hspace{2cm}}.$

7. (1 pt)

Convert the following polar coordinates into rectangular coordinates.

(a) $(2, \frac{\pi}{4})$

$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}.$

(b) $(4, \frac{2\pi}{3})$

$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}.$

(c) $(6, \frac{3\pi}{2})$

$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}.$

(d) $(6, \frac{5\pi}{3})$

$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}.$

8. (1 pt) A curve with polar equation

$$r = \frac{45}{4 \sin \theta + 33 \cos \theta}$$

represents a line. This line has a Cartesian equation of the form

$y = mx + b$, where m and b are constants. Give the formula for y in terms of x . For example, if the line had equation $y = 2x + 3$ then the answer would be $2 * x + 3$.
