



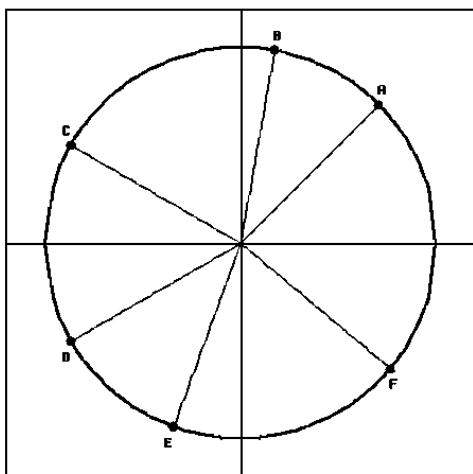
## Homework 6.1 – The Cosine and Sine Functions

1. (1 pt) [alfredLibrary/AUCI/chapter6/lesson1/unitcircle1pet.pg](#)

For each angle listed in the table below, select the letter of the corresponding point on the unit circle, then use your calculator (in degree mode) to compute the values of the  $x$ - and  $y$ -coordinates of the point.

NOTE: You must compute your answers before you enter them. You may enter exact values or round to 3 decimal places. Answers of the form  $\sin(45)$ , for instance, will not be accepted.

Angle	Point	x-coordinate	y-coordinate
$-150^\circ$	?	_____	_____
$-400^\circ$	?	_____	_____
$45^\circ$	?	_____	_____
$800^\circ$	?	_____	_____
$150^\circ$	?	_____	_____
$250^\circ$	?	_____	_____

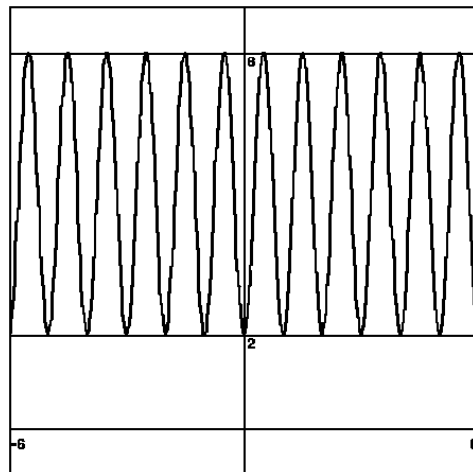


(Click on graph to enlarge)

2. (1 pt) [alfredLibrary/AUCI/chapter6/lesson1/quiz/trigfunction1pet.pg](#)

(a) The midline of the graph is the line with equation \_\_\_\_\_

(b) The amplitude of the graph is \_\_\_\_\_



(Click on graph to enlarge)

3. (1 pt) [alfredLibrary/AUCI/chapter6/lesson1/quiz/sinusoidal3pet.pg](#)

If  $y = 1 \cos(9t + 19) + 4$ , then the phase shift of the graph (as  $C/B$ ) is \_\_\_\_\_.

4. (1 pt) [alfredLibrary/AUCI/chapter6/lesson1/question2pet.pg](#)

Suppose  $y = 2\pi \cos(-5t + 6) + 9$ . In your answers, enter 'pi' for  $\pi$ .

(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 \_\_\_\_\_.

(d) The phase shift (as  $C/B$ ) is \_\_\_\_\_.

5. (1 pt) [alfredLibrary/AUCI/chapter6/lesson1/sinusoidalapplication2pet.pg](#)

The pressure  $P$  (in pounds per square foot) in a pipe varies over time. Four times an hour, the pressure oscillates from a low of 40 to a high of 300 and then back to a low of 40. The pressure at time  $t = 0$  is 40. Let the function  $P(t)$  denote the pressure in the pipe at time  $t$  (in minutes). Find a possible formula for the function  $P(t)$ . (HINT: It is important to make a sketch of  $P$  over the course of one hour, but note that time is in minutes!)

$P(t) =$  \_\_\_\_\_