

	Function	Domain	Range	Amplitude	Period	Phase Shift
a)	$y = 2\sin(x - 90^\circ)$	$\{x \in \mathbb{R}   0^\circ \leq x \leq 360^\circ\}$	$\{y \in \mathbb{R}   -2 \leq y \leq 2\}$	2	$360^\circ$	Right $90^\circ$
b)	$y = \frac{1}{2}\cos(x + 90^\circ)$	$\{x \in \mathbb{R}   0^\circ \leq x \leq 360^\circ\}$	$\{y \in \mathbb{R}   -\frac{1}{2} \leq y \leq \frac{1}{2}\}$	$\frac{1}{2}$	$360^\circ$	Left $90^\circ$
c)	$y = \frac{1}{2}\sin(\frac{1}{2}x - 180^\circ) - 2$	$\{x \in \mathbb{R}   0^\circ \leq x \leq 720^\circ\}$	$\{y \in \mathbb{R}   -\frac{5}{2} \leq y \leq -\frac{3}{2}\}$	$\frac{1}{2}$	$720^\circ$	Right $90^\circ$
d)	$y = 2\cos\frac{1}{2}(x - 180^\circ) + 1$	$\{x \in \mathbb{R}   0^\circ \leq x \leq 720^\circ\}$	$\{y \in \mathbb{R}   -1 \leq y \leq 3\}$	2	$720^\circ$	right $180^\circ$
e)	$y = -2\cos(3x - 180^\circ) + 2$	$\{x \in \mathbb{R}   0^\circ \leq x \leq 120^\circ\}$	$\{y \in \mathbb{R}   0 \leq y \leq 4\}$	2	$120^\circ$	right $60^\circ$

NOTE: Many answers in the back of the textbook are in radians rather than degrees. Please see your teacher for answers measured in degrees. (For your interest:  $180^\circ = \pi$ )

**Essential Skills: By the end of this unit I will be able to....**

- |  |   |
|--|---|
| <input type="checkbox"/> Demonstrate an understanding of periodic behavior                                 | <input type="checkbox"/> Determine the equation of a sinusoidal function (from graph and given key info.) |
| <input type="checkbox"/> Given an graph or equation, be able to identify period, phase shift and amplitude | <input type="checkbox"/> Solving Trigonometric Equations  |
| <input type="checkbox"/> Graph sinusoidal functions including transformations                              | <input type="checkbox"/> Solve real-world problems involving sinusoidal functions                         |

a) min -2  
max 2

c) min  $-\frac{1}{2} - 2 = -\frac{5}{2}$   
max  $\frac{1}{2} - 2 = -\frac{3}{2}$

$y = \frac{1}{2}\sin\frac{1}{2}(x - 90^\circ) - 2$   
period =  $\frac{360^\circ}{\frac{1}{2}}$   
 $= 360^\circ \times 2$   
 $= 720^\circ$

d) min  $-2 + 1 = -1$   
max  $2 + 1 = 3$

$P = \frac{360^\circ}{\frac{1}{2}}$   
 $= 360^\circ \times \frac{2}{1}$   
 $= 720^\circ$

e) min  $-2 + 2 = 0$   
max  $2 + 2 = 4$

$P = \frac{360^\circ}{3}$   
 $= 120^\circ$

$y = -2\cos 3(x - 60^\circ) + 2$