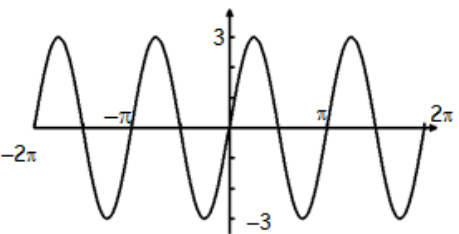
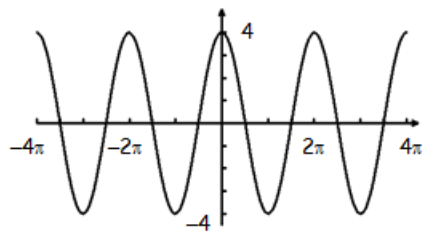
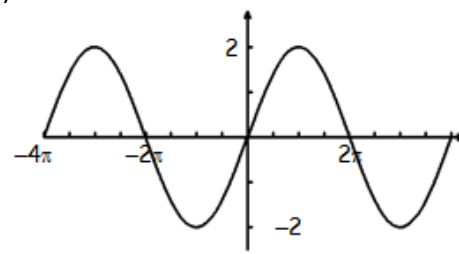
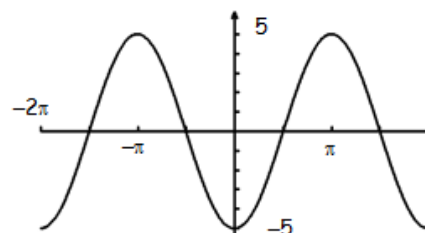
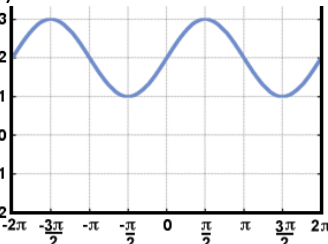


1) The following are some key features from the parent sine function. Check which of these key features will change once each parameter changes. Think about what you saw in your Desmos activity.

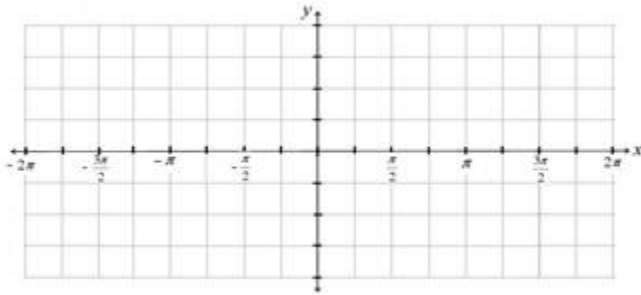
Key Feature	Parent Function	Period Changes	Amplitude Changes	Midline Changes
Domain	All Real Numbers			
Range	$-1 \leq y \leq 1$			
Maximum Values	1			
Minimum Values	-1			
Location of Maximums	$\frac{\pi}{2} + 2\pi n$			
Location of Minimums	$\frac{3\pi}{2} + 2\pi n$			
x-intercepts	$\pi + \pi n$			
y-intercept	(0, 0)			

2) Identify the amplitude, period, and midline of each function graphed below. Then write an equation of each graph. Check your answers by graphing your equation in your calculator.

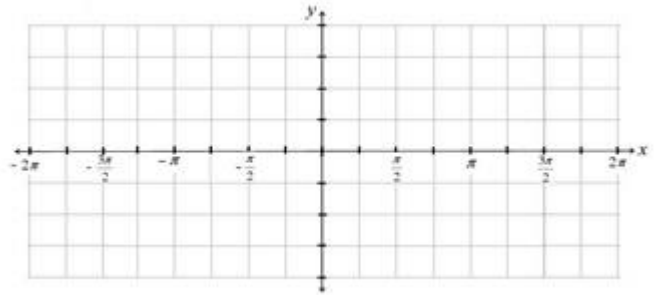
<p>a)</p>  <p>Amplitude: _____ Period: _____</p> <p>Midline: _____ Equation: _____</p>	<p>b)</p>  <p>Amplitude: _____ Period: _____</p> <p>Midline: _____ Equation: _____</p>
<p>c)</p>  <p>Amplitude: _____ Period: _____</p> <p>Midline: _____ Equation: _____</p>	<p>d)</p>  <p>Amplitude: _____ Period: _____</p> <p>Midline: _____ Equation: _____</p>
<p>e)</p> 	<p>Amplitude: _____ Period: _____</p> <p>Midline: _____ Equation: _____</p>

3) Sketch the graph of the function over the interval $-2\pi \leq x \leq 2\pi$. Do not use your calculator to create the graph use what you know about period, amplitude, midline, and the parent function. You may check your work with your graphing calculator.

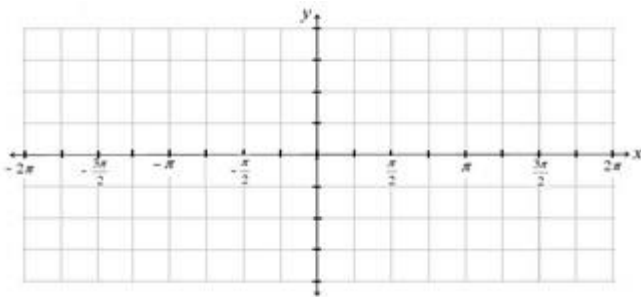
a. $y = 4 \sin x$



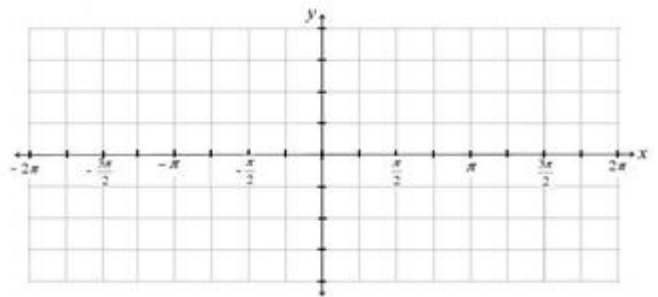
b. $y = 2 \cos x$



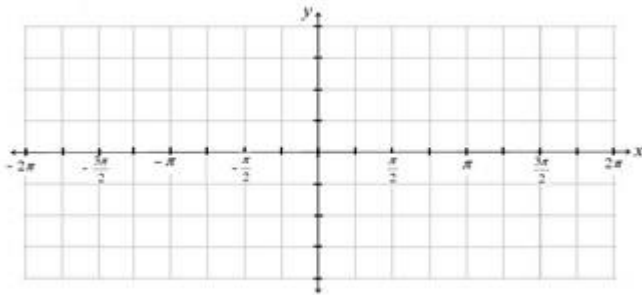
c. $y = 2 \sin(2x)$



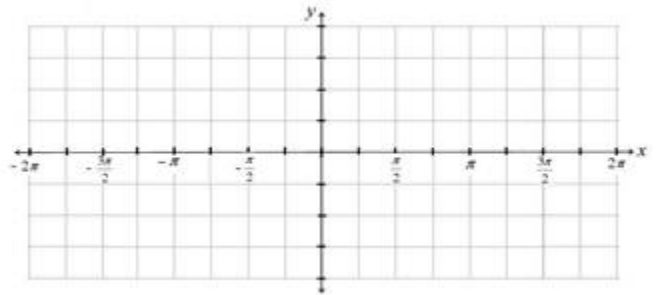
d. $y = \cos(x) + 2$



e. $y = 3 \cos\left(\frac{1}{2}x\right)$



f. $y = -\sin(x)$



4) Determine the amplitude, period, and mid-line for each.

a. $y = 2 + 3\sin(4x)$

b. $y = 2 \cos(x) - 7$

c. $y = \frac{1}{2} \cos 2x - 4$

d. $y = 3 + 4\sin\left(\frac{1}{4}x\right)$