Name: _____ **Assignment 5.1 & 5.2**

1. Determine the key features for the function: $y = -5sin\left(\frac{1}{2}\left(x - \frac{\pi}{2}\right)\right) + 15$

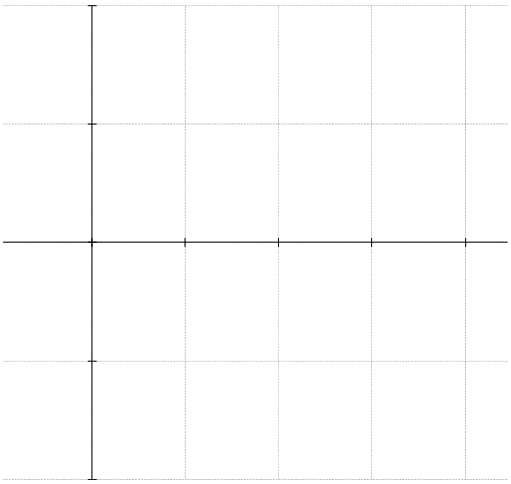
a) Amplitude: _____ b) Period: _____

c) Phase Shift: _____ d) Vertical displacement: _____

e) Domain: _____ f) Range: _____

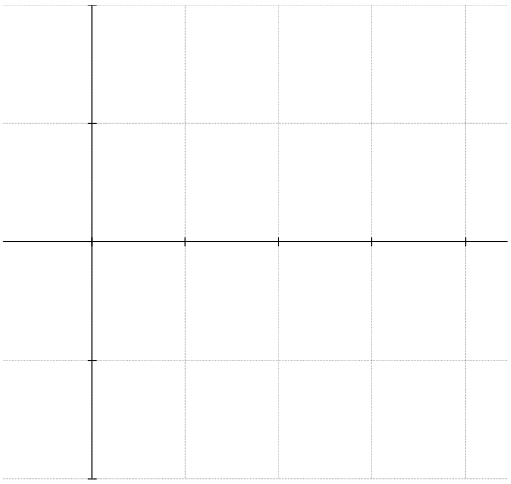
2. Graph the following functions and label the axis. (at least one period)

a) $y = sin2x$

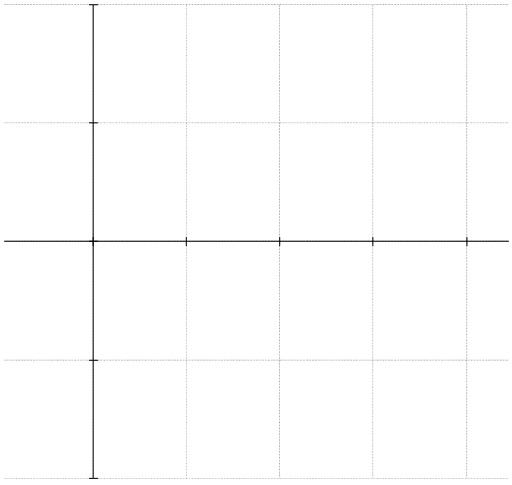


b) $y = cos\frac{x}{2}$

c) $y = 2sinx$



d) $y = -1.5cosx$



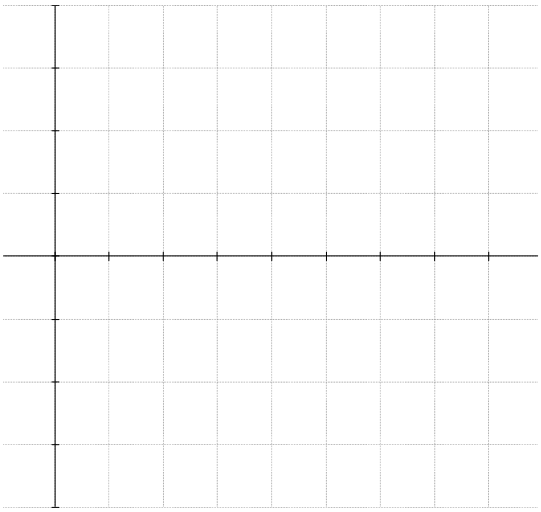
3. Write the equation of each sine function in the form $y = asinb(x - c) + d$ given its characteristics:

a) amplitude 2, period π, phase shift $\frac{\pi}{3}$ to the left, vertical displacement 1 unit down

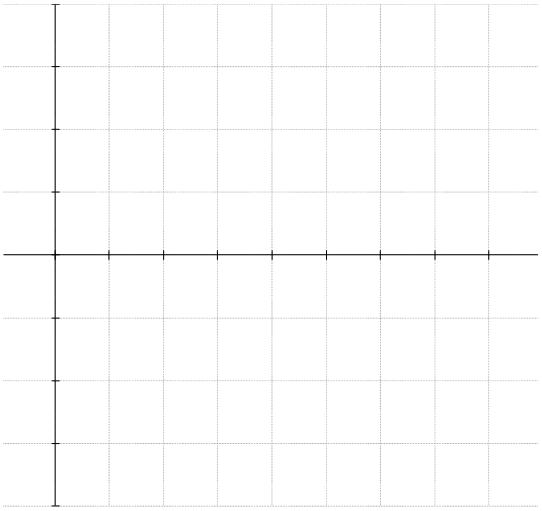
b) amplitude $\frac{1}{4}$, period 6π, phase shift π to the right, vertical displacement 2 units up

4. Graph the following functions and label the axis. (at least one period)

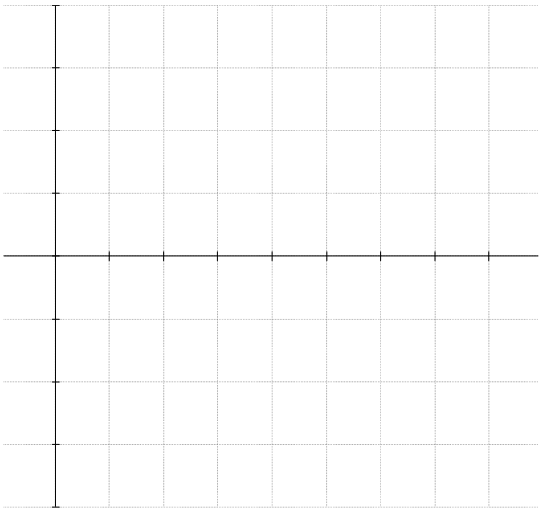
a) $y = sinx - 2$



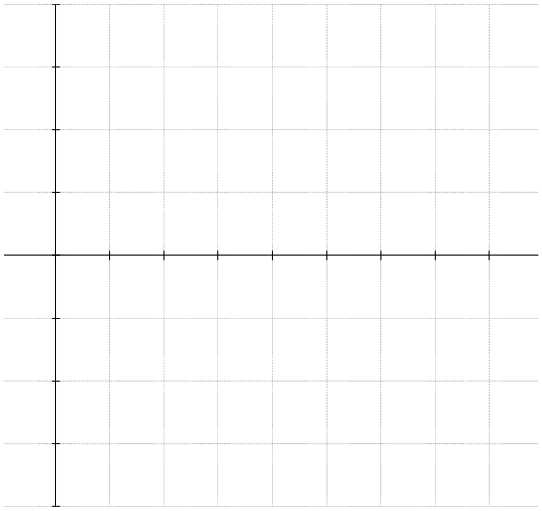
b) $y = 2cos\left(x - \frac{\pi}{3}\right)$



c) $y = -4sin\left(x - \frac{\pi}{4}\right)$



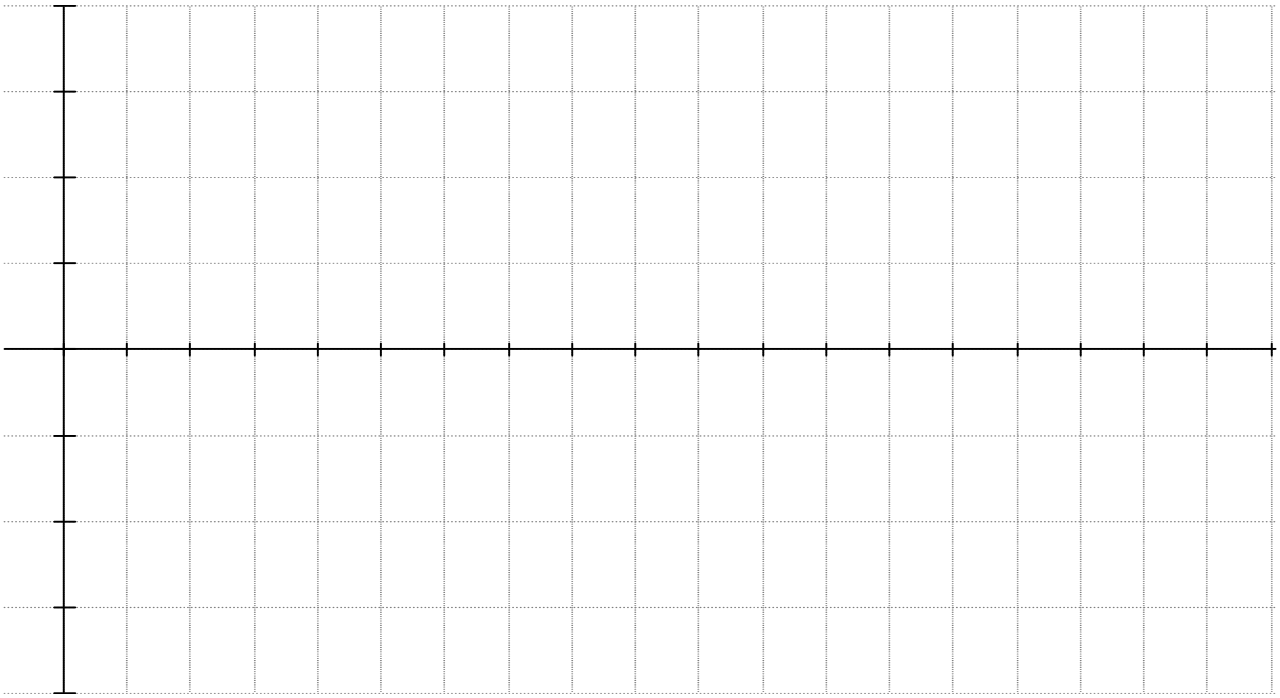
d) $y = cos(2x - \pi)$



5. Graph the following function (show 2 periods). State the period and phase shift.

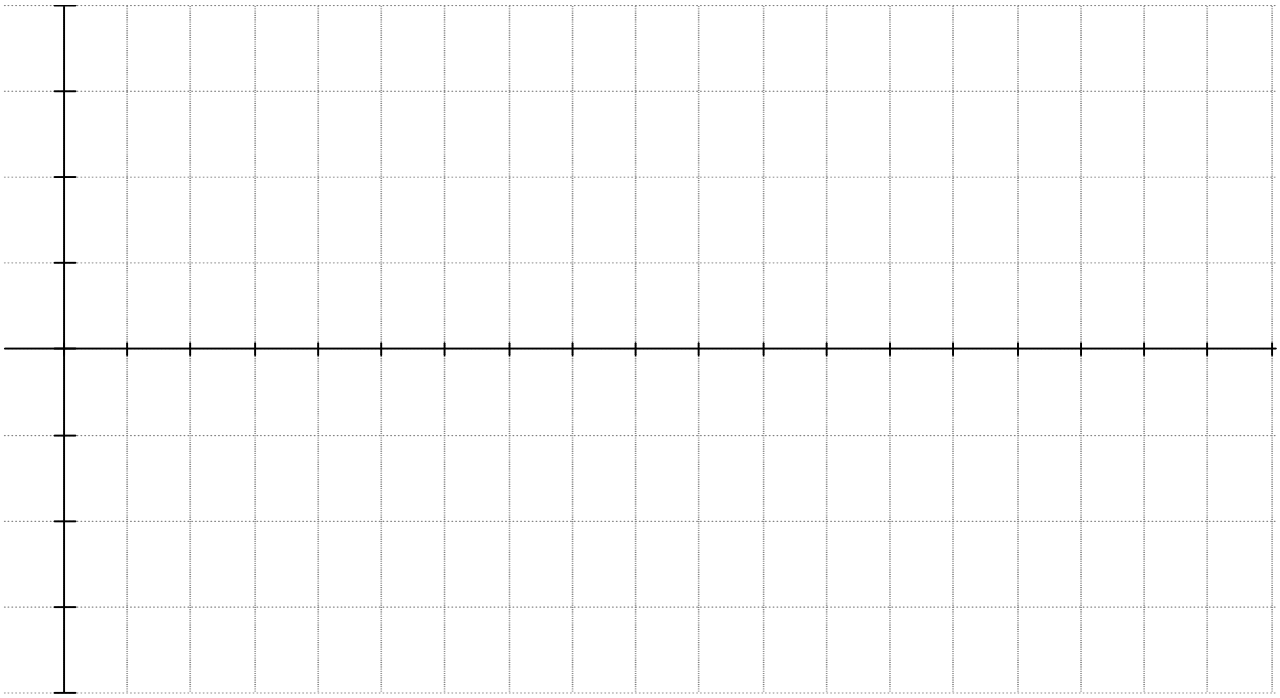
a) $y = 2cos\frac{1}{2}\left(x - \frac{\pi}{2}\right) + 2$

period : _____ phase shift: _____



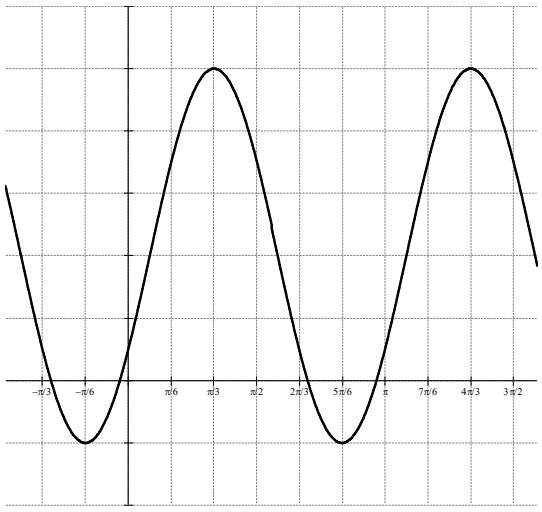
b) $y = 3sin3\left(x + \frac{\pi}{4}\right) - 1$

period : _____ phase shift: _____



6. Write an equation to represent the graph below.

a)



b)