

Name : \_\_\_\_\_

Block : \_\_\_\_\_

## Chapter 5

### Trigonometric Functions and Graphs Assignment

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

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)  $y = \sin 2x$



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



c)  $y = 2\sin x$



d)  $y = -1.5\cos x$



Pre-Calculus 12

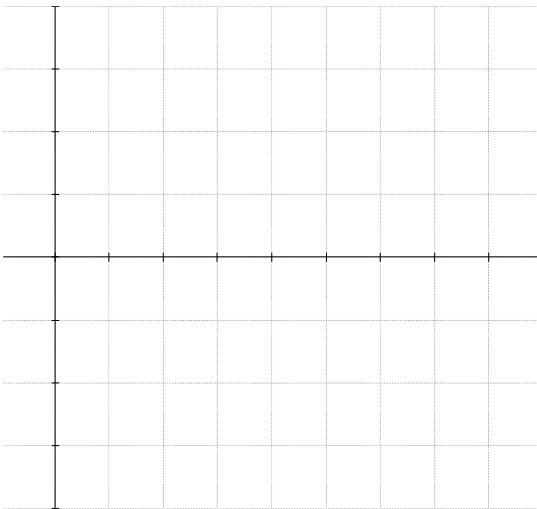
3. Write the equation of each sine function in the form  $y = a\sin b(x - c) + d$  given its characteristics.

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

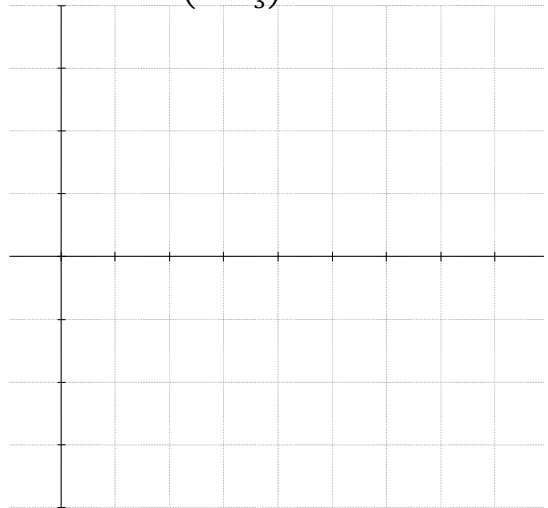
b) amplitude  $\frac{1}{4}$ , period  $6\pi$ , phase shift  $\pi$  to the right, vertical displacement 2 units up.

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

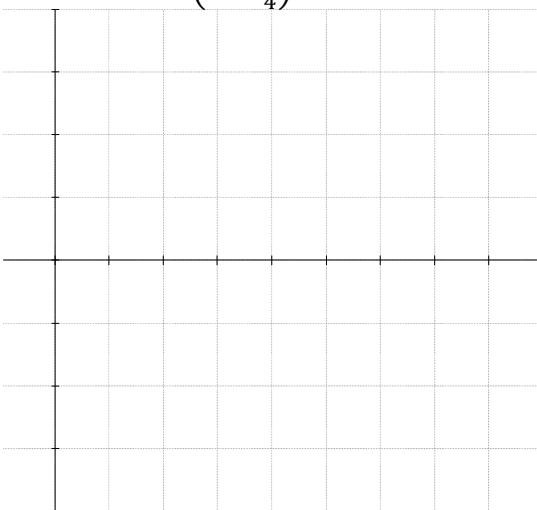
a)  $y = \sin x - 2$



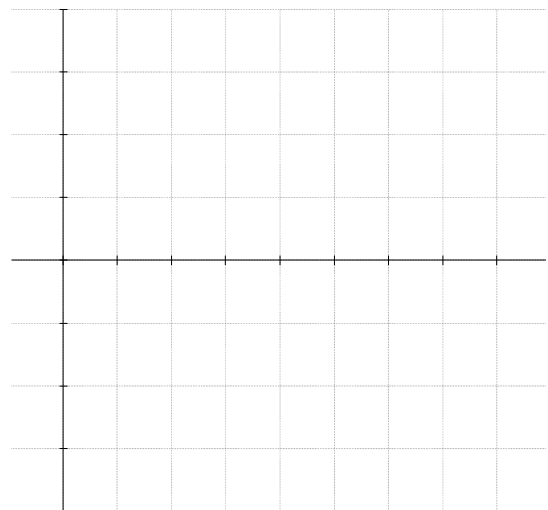
b)  $y = 2\cos\left(x - \frac{\pi}{3}\right)$



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



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



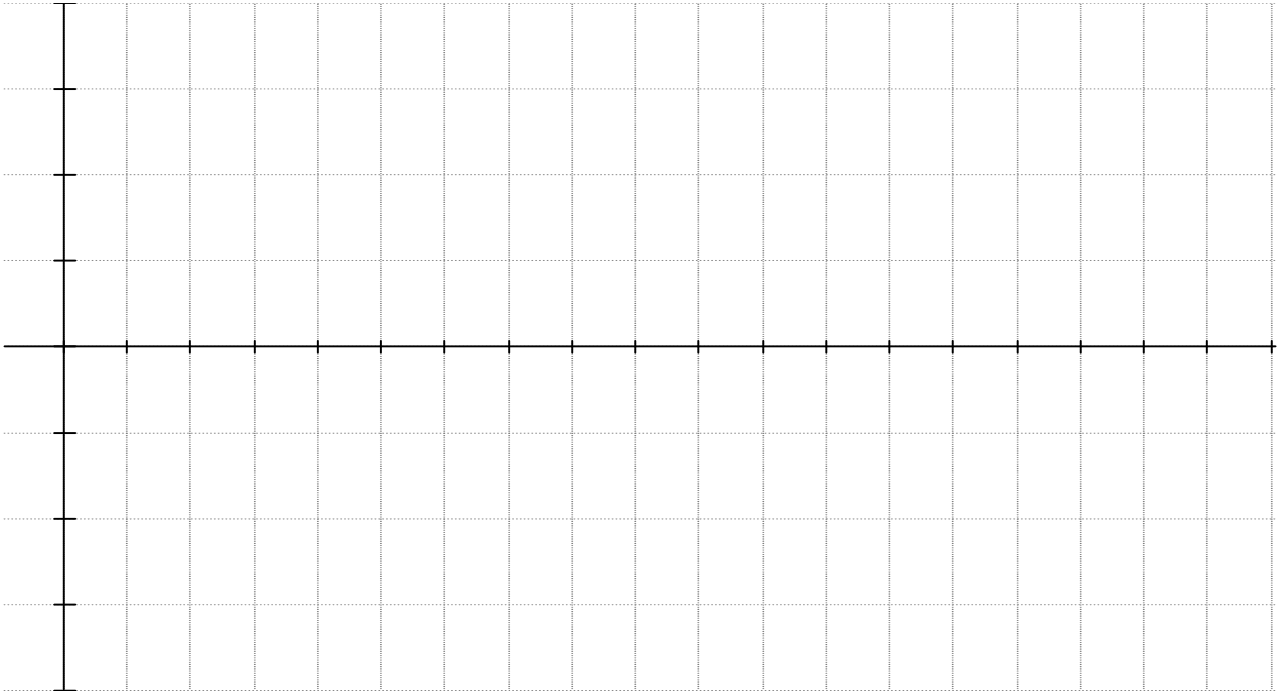
Pre-Calculus 12

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

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

period : \_\_\_\_\_

phase shift: \_\_\_\_\_



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

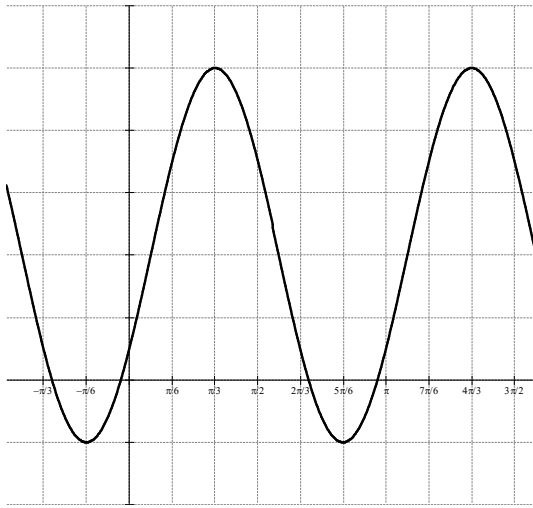
period : \_\_\_\_\_

phase shift: \_\_\_\_\_



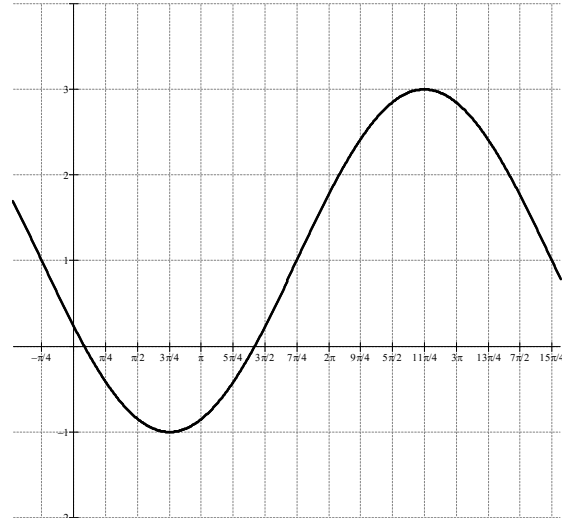
6. Write an equation to represent the graph below.

a)




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d)




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