All graphs below are transformations on the graphs of the sine and cosine functions and are of the form:



Unless otherwise stated, all windows for the x-axis were set as:

![[image]]()![[image]]()1) *vertical shift only…*  2) *amplitude only…*

 Y = \_$ \cos(\left(x\right))+2$\_\_\_\_ Y = \_$4\cos(\left(x\right))$\_\_\_\_\_\_\_

![[image]]()![[image]]()

3) *transformation on a sine function…* 4)

 Y = \_\_\_$3\sin(\left(x\right))-1$\_\_\_\_\_\_ Y = \_\_\_$3\sin(\left(2x\right))$\_\_\_\_

![[image]]()![[image]]()5) *cosine…* 6) *sine… amplitude/phase shift…*

 Y = \_$\cos(\left(4x\right))$\_\_\_\_\_\_\_\_ Y = \_\_$2\sin(\left(x+\frac{π}{4}\right))-3$\_\_\_\_\_\_\_\_

![[image]]()![[image]]()7) *cosine… phase shift…* 8) cosine…

$y=\cos(\left(x+\frac{π}{4}\right))$ $y=-3\cos(\left(x\right))$

 $y=3\cos(\left(x+π\right))$

$$y=3\cos(\left(x-π\right))$$

 $y=3\sin(\left(x-\frac{π}{2}\right))$

$$y=-3\sin(\left(x+\frac{π}{2}\right))$$

$$y=3\sin(\left(x+\frac{3π}{2}\right))$$

9) *sine… amplitude/phase shift…* 10) *cosine…*

![[image]]()![[image]]()

$y=4\sin(\left(x+pi/2\right))$ $y=-3\cos(\left(x\right))-2$

Items 11-15: Complete the blanks based on the given equation.

11)  Amplitude: \_\_5\_\_\_\_\_\_\_

 Equation of Midline: \_y=0\_\_\_\_\_

 Period: \_π\_\_\_\_\_

 Phase Shift: \_\_\_ π/8\_\_\_\_\_\_

12)  Amplitude: \_\_\_3\_\_\_\_\_\_

 Equation of Midline: \_y=2\_\_\_\_\_

 Period: \_\_ π/2\_\_\_\_\_

 Phase Shift: \_\_0\_\_\_\_\_\_\_

13)  Amplitude: \_\_2\_\_\_\_\_\_\_

 Equation of Midline: \_\_y=-3\_\_\_\_

 Period: \_\_\_2\_\_\_\_

 Phase Shift: \_\_0\_\_\_\_\_\_\_

14)  Amplitude: \_\_\_1\_\_\_\_\_\_

 Equation of Midline: \_y=1\_\_\_\_\_

 Period: \_ 2π/3\_\_\_\_

 Phase Shift: \_\_ -π/6\_\_\_\_\_\_\_