

Graphing Sine and Cosine with a Phase Shift  
 Notes  
 Trigonometry  
 Algebra 2

Name \_\_\_\_\_

Hour \_\_\_\_\_ Date \_\_\_\_\_

*A phase shift moves a sine or cosine graph left or right. If you have a phase shift, move the first point for the shift and then graph from there as normal. The values below display possible starting points if you have a phase shift.*

$$-2\pi \quad -\frac{3\pi}{2} \quad -\pi \quad -\frac{\pi}{2} \quad 0 \quad \frac{\pi}{2} \quad \pi \quad \frac{3\pi}{2} \quad 2\pi$$

For Example #1-3, graph each function. List the equation of the midline, domain, range, maximum(s), minimum(s), and midline intercepts.

1.  $y = 2\sin(\theta + \pi) - 3$

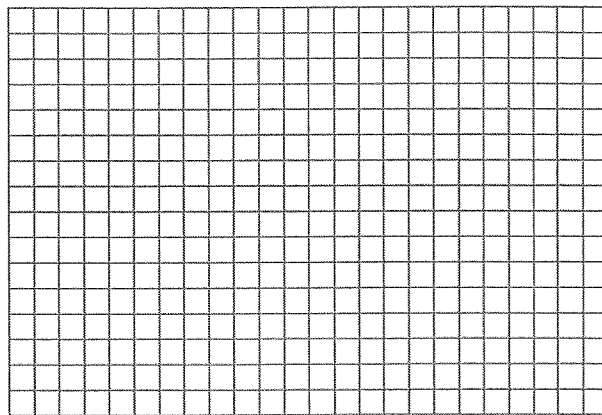
Midline Equation: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Maximum(s) \_\_\_\_\_

Minimum(s) \_\_\_\_\_

Midline Intercepts \_\_\_\_\_



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

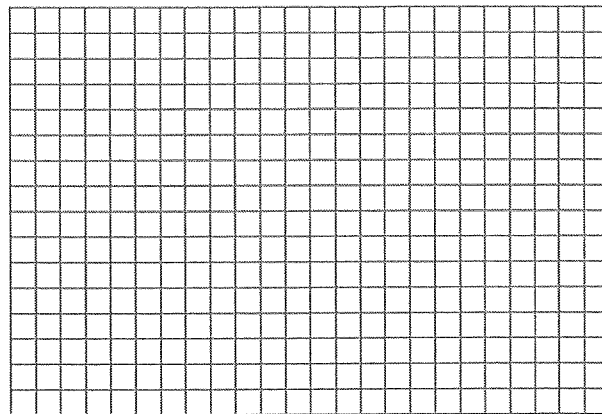
Midline Equation: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Maximum(s) \_\_\_\_\_

Minimum(s) \_\_\_\_\_

Midline Intercepts \_\_\_\_\_



3.  $y = \sin\left(\theta + \frac{\pi}{4}\right) + 2$

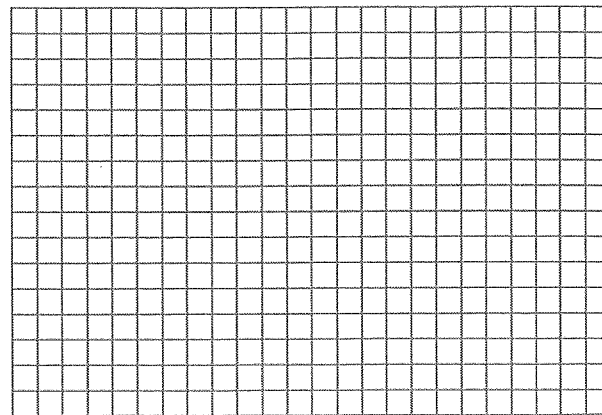
Midline Equation: \_\_\_\_\_

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

Maximum(s) \_\_\_\_\_

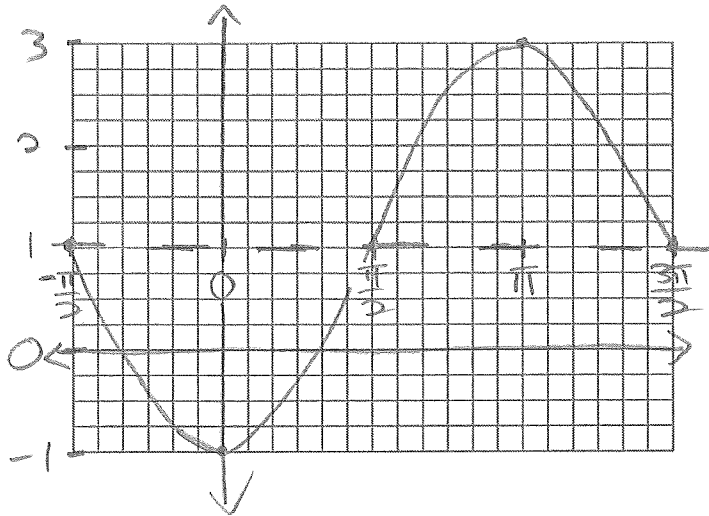
Minimum(s) \_\_\_\_\_

Midline Intercepts \_\_\_\_\_



4. Write the equation for each function graphed below. It will help to identify the key information for the graph first: Type, Sign (+/-), Phase Shift, & Vertical Shift.

a.



Type \_\_\_\_\_

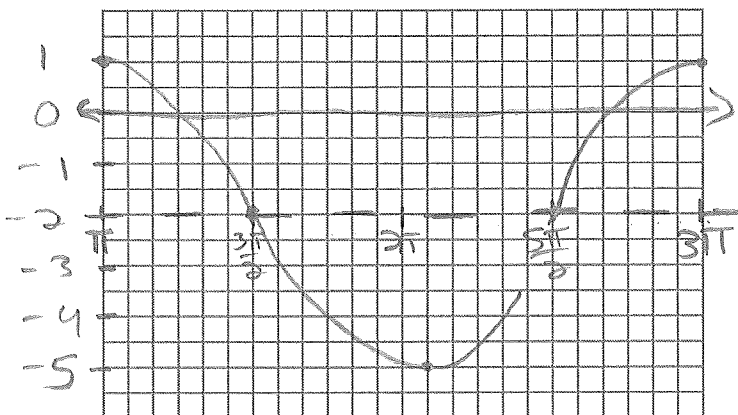
Sign (+/-) \_\_\_\_\_

Phase Shift \_\_\_\_\_

Vertical Shift \_\_\_\_\_

Equation \_\_\_\_\_

b.



Type \_\_\_\_\_

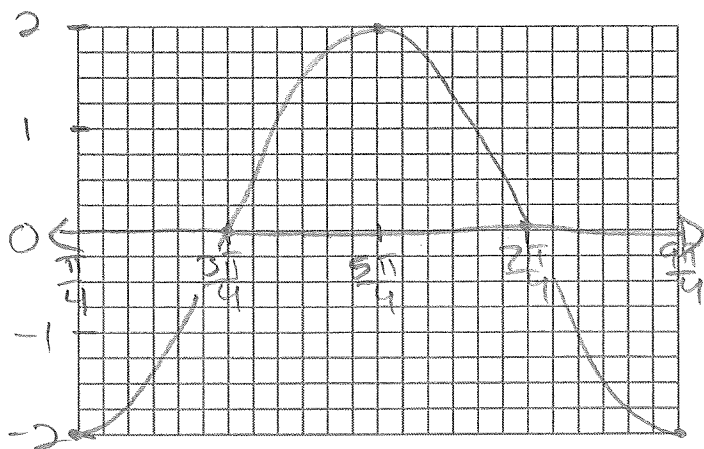
Sign (+/-) \_\_\_\_\_

Phase Shift \_\_\_\_\_

Vertical Shift \_\_\_\_\_

Equation \_\_\_\_\_

c.



Type \_\_\_\_\_

Sign (+/-) \_\_\_\_\_

Phase Shift \_\_\_\_\_

Vertical Shift \_\_\_\_\_

Equation \_\_\_\_\_