Accel Math III Practice Worksheet #3 Graphing Sine and Cosine Name: Key

Unit #5: Graphs and Inverses of Trig Functions MA3A3 b, c, d

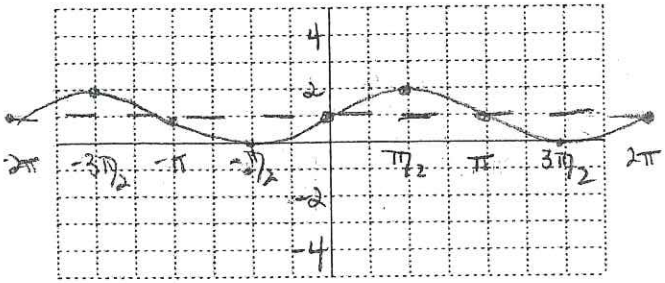
Lesson #4: Graphing Sine and Cosine

I. State the amplitude, period, phase shift, and vertical shift for each. Then graph.

1. $y = \sin x + 1$

A = 1 NP = 2π

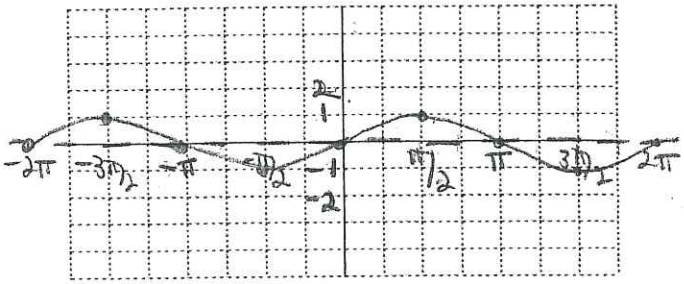
PS = none VS = up 1



2. $y = \cos(x - \pi/2)$

A = 1 NP = 2π

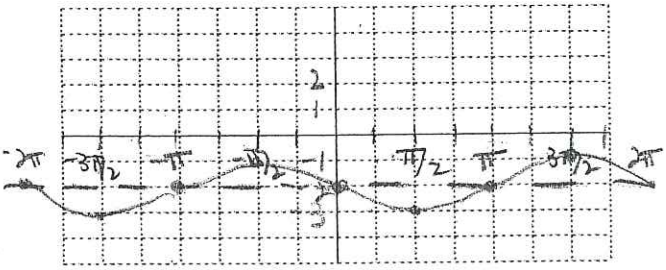
PS = $\pi/2 \rightarrow$ VS = none



3. $y = \sin(-x) - 2$

A = 1 NP = 2π

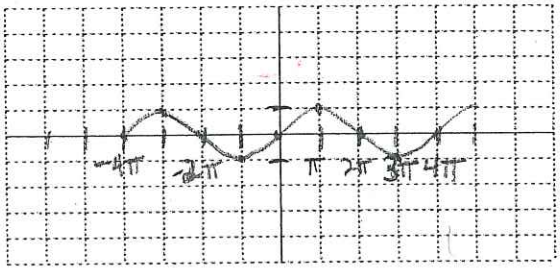
PS = none VS = down 2 Reflect y-axis



4. $y = \sin(\frac{1}{2}x)$

A = 1 NP = $\frac{2\pi}{1/2} = 4\pi$

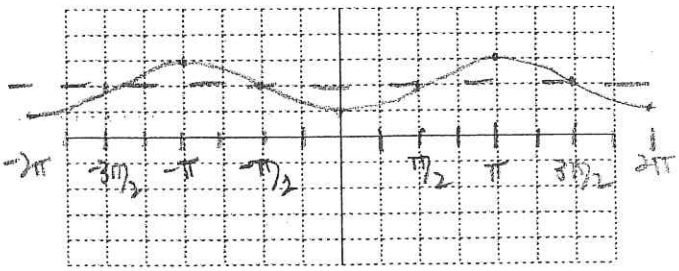
PS = none VS = none



5. $y = -\cos x + 2$

A = 1 NP = 2π

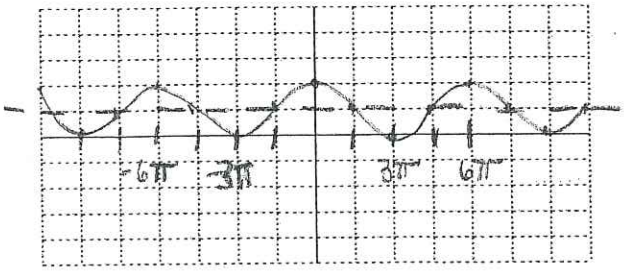
PS = none VS = up 2 Reflect x-axis



6. $y = \cos(\frac{1}{3}x) + 1$

A = 1 NP = $2\pi/\frac{1}{3} = 6\pi$

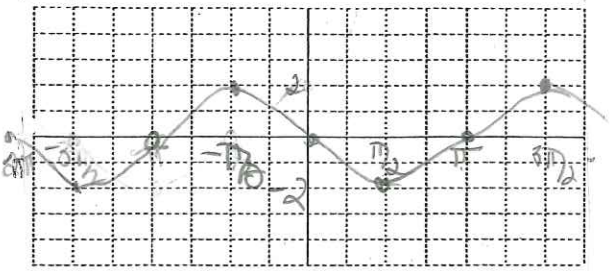
PS = none VS = up 1



7. $y = 2\sin(x - \pi)$

A = 2 NP = 2π

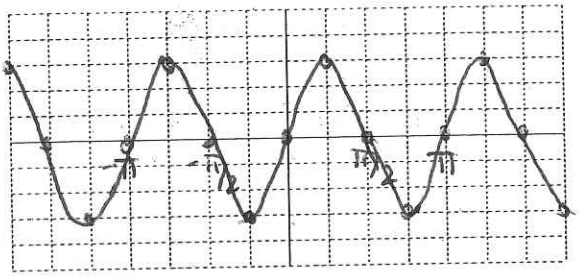
PS = π right VS = normal



8. $y = -3\cos(2x + \frac{\pi}{2})$

A = 3 NP = $2\pi/2 = \pi$

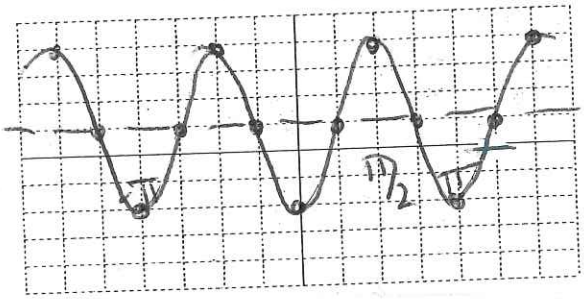
PS = $\frac{\pi/2}{2} = \frac{\pi}{4}$ ← VS = normal



9. $y = 3\cos(2x + \pi) + 1$

A = 3 NP = $2\pi/2 = \pi$

PS = $\pi/2$ ← VS = up 1



II. Write the equation of a **sine function** given:

10.	amplitude = 4	new period = $\pi/4$		vertical shift = 6
11.	amplitude = 1	new period = $2\pi/3$	phase shift = $\pi/6$ left	
12.	amplitude = 3	new period = π	phase shift = $\pi/3$ right	

III. Write the equation of **cosine function** given:

13.	amplitude = 3	new period = 2π	phase shift = π	vertical shift = 1 down
14.	amplitude = 2	new period = 1	phase shift = $\frac{1}{2}$	
15.	amplitude = 6	new period = 6π	phase shift = $\pi/2$ left	vertical shift = 3 up

10. $y = \pm 4\sin(8x) + 6$

11. $y = \pm 5\sin[3(x + \pi/6)]$

12. $y = \pm 3\sin[2(x - 2\pi/6)]$

13. $y = \pm 3\cos(x - \pi) - 1$

14. $y = \pm 2\cos[2\pi(x - 1/2)]$

15. $y = \pm 6\cos[1/3(x + \pi/2)] + 3$

* Not told of reflection, so "±" takes care of that.