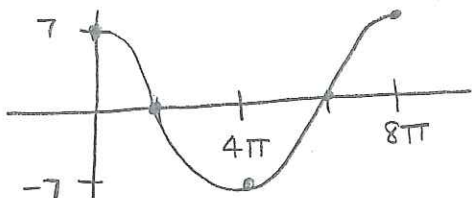


Revised

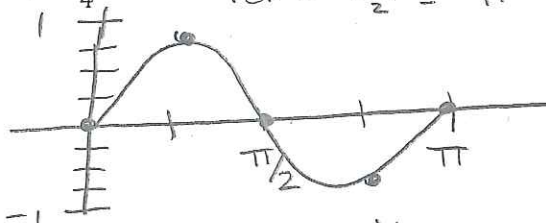
Name Key
Date _____ Hour _____

State the amplitude and period for each function. Then graph each function

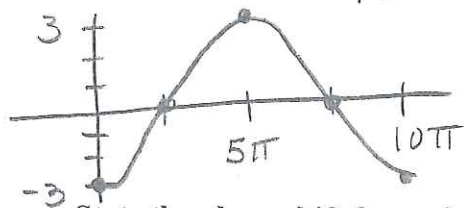
1. $y = 7\cos\frac{\theta}{4}$ Amp = 7
Per = $\frac{2\pi}{1/4} = 8\pi$



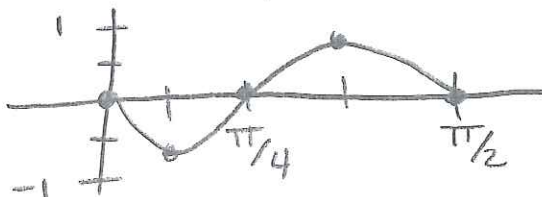
2. $y = \frac{3}{4}\sin 2\theta$ Amp = 3/4
Per = $\frac{2\pi}{2} = \pi$



3. $y = -3\cos\frac{\theta}{5}$ Amp = 3
Per = $\frac{2\pi}{1/5} = 10\pi$



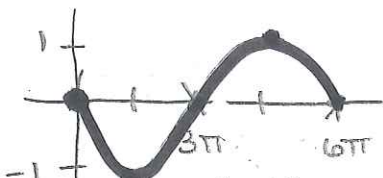
4. $y = -\frac{1}{2}\sin 4\theta$ Amp = 1/2
Per = $\frac{2\pi}{4} = \pi/2$



State the phase shift for each function. Then graph each function.

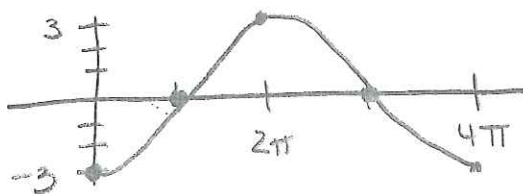
Per = $\frac{2\pi}{1/3} = 6\pi$

5. $y = \sin(\frac{\theta}{3} - \pi)$ P.S. = $\frac{C}{k} = \frac{\pi}{1/3} = 3\pi$



6. $y = -3\cos(\frac{\theta}{2} - 4\pi)$

P.S. = $\frac{C}{k} = \frac{4\pi}{1/2} = 8\pi$
Per = $\frac{2\pi}{1/2} = 4\pi$



7. $y = \sin(\frac{\theta}{3} - \frac{3\pi}{2})$
P.S. = $\frac{C}{k} = \frac{3\pi/2}{1/3} = \frac{3\pi}{2} \cdot \frac{3}{1} = \frac{9\pi}{2}$

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



State the amplitude, period, phase shift, vertical shift and equation for the midline for each function. Then graph the function.

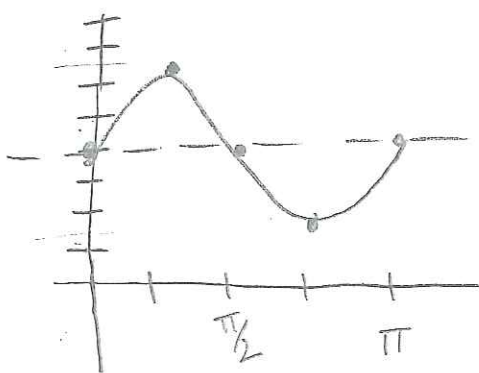
8. $y = -2.5\sin(2\theta - \pi) + 4$

9. $y = 4\cos(\frac{\theta}{2} + \pi) - 6$

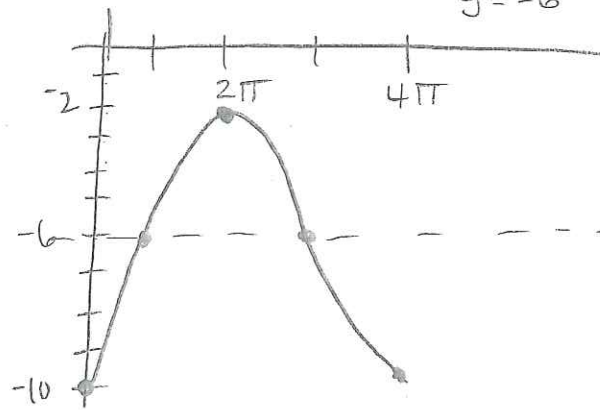
Amp = 4 Per = $\frac{2\pi}{1/2} = 4\pi$
P.S. = $-\frac{\pi}{1/2} = -2\pi$ V.S. = -6
y = -6

Amp = 2.5
Per = $\frac{2\pi}{2} = \pi$
P.S. = $\pi/2$
V.S. = 4
y = 4

θ	y
0	4
$\pi/4$	6.5
$\pi/2$	4
$3\pi/4$	1.5
π	4



θ	y
0	-10
π	-6
2π	-2
3π	-6
4π	-10



10. Write an equation of a cosine function with amplitude 7.5 and period 8π .

$$\text{Per} = \frac{2\pi}{k} = 8\pi$$

$$\frac{8\pi k}{8\pi} = \frac{2\pi}{8\pi}$$

$$k = \frac{1}{4}$$

$$y = \pm 7.5 \cos \frac{\theta}{4}$$

11. Write an equation of a sine function with amplitude $\frac{1}{3}$ and period 9.

$$\text{per} = \frac{2\pi}{k} = 9$$

$$9k = 2\pi$$

$$k = \frac{2\pi}{9}$$

$$y = \pm \frac{1}{3} \sin \frac{2\pi}{9} \theta$$

12. Write an equation of a sine function with amplitude 2, period $\frac{\pi}{4}$, phase shift -2π , and vertical shift -3 .

$$\text{per} = \frac{2\pi}{k} = \frac{\pi}{4}$$

$$\pi k = 8\pi$$

$$k = 8$$

$$\text{P.S.} = \frac{c}{8} = -2\pi \quad c = -16\pi$$

$$y = A \sin (\theta - c) + h$$

$$y = \pm 2 (8\theta + 16\pi) - 3$$

13. Write an equation of a sine function with amplitude 4, period 3π , phase shift $-\frac{\pi}{4}$, and vertical shift -3 .

$$\text{per} = \frac{2\pi}{k} = 3\pi$$

$$3\pi k = 2\pi$$

$$k = \frac{2}{3}$$

$$\text{P.S.} = \frac{c}{\frac{2}{3}} = -\frac{\pi}{4} \quad c = \left(\frac{2}{3}\right)\left(-\frac{\pi}{4}\right) = -\frac{\pi}{6}$$

$$y = A \sin (k\theta - c) + h$$

$$y = \pm 4 \sin \left(\frac{2}{3}\theta + \frac{\pi}{6}\right) - 3$$

14. Write an equation of a cosine function with amplitude $\frac{3}{5}$, period $\frac{\pi}{3}$, phase shift 0, and vertical shift 6.

$$\text{Per} = \frac{2\pi}{k} = \frac{\pi}{3}$$

$$\pi k = 6\pi$$

$$k = 6$$

$$y = \pm \frac{3}{5} \cos (6\theta) + 6$$