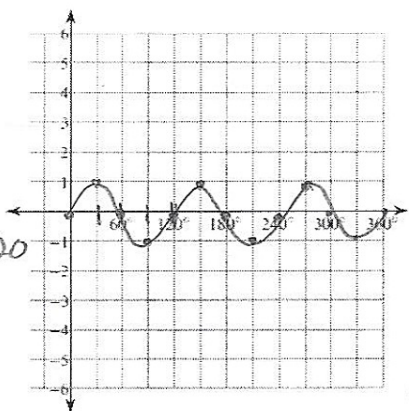


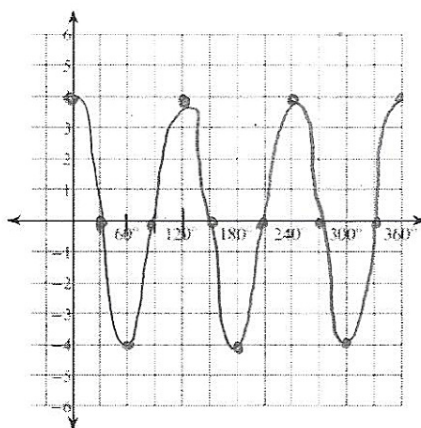
Find the amplitude, frequency and period of each function in **degrees**. Then graph the function.

1)  $y = \sin 3\theta$



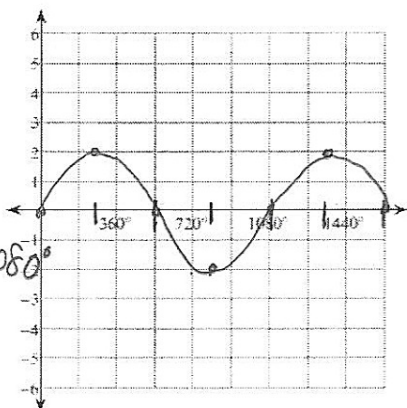
$A = 1$   
 $\text{freq} = 3$   
 $\text{period} = \frac{360}{3} = 120$

2)  $y = 4\cos 3\theta$



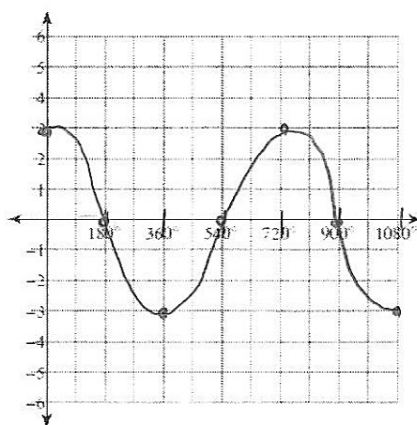
$A = 4$   
 $\text{freq} = B = 3$   
 $\text{Period} = \frac{360}{3} = 120^\circ$

3)  $y = 2\sin \frac{\theta}{3}$



$A = 2$   
 $B = \text{freq} = \frac{1}{3}$   
 $\text{period} = \frac{360}{\frac{1}{3}} = 1080^\circ$

5)  $y = 3\cos \frac{\theta}{2}$



$A = 3$   
 $B = \text{freq} = \frac{1}{2}$   
 $\text{period} = \frac{360}{\frac{1}{2}} = 720^\circ$

Solve for  $0 \leq \theta < 360^\circ$ . Give answers to the nearest tenth of a degree. Hint: Draw graphs to help find the angles.

6.  $2 \tan \theta + 1 = 0$

$$2 \tan \theta = -1$$

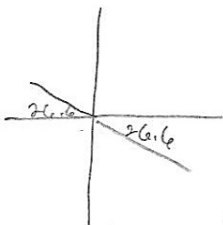
$$\tan \theta = -\frac{1}{2}$$

$$\theta = \tan^{-1}\left(-\frac{1}{2}\right)$$

$$\theta = -26.6$$

$$\theta = 360 - 26.6 = 333.4^\circ$$

$$\theta = 180 - 26.6 = 153.4^\circ$$



7.  $5 \csc \theta + 6 = 0$

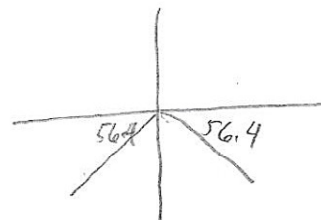
$$5 \csc \theta = -6$$

$$\csc \theta = -\frac{6}{5}$$

$$\sin \theta = -\frac{5}{6}$$

$$\theta = \sin^{-1}\left(-\frac{5}{6}\right)$$

$$\theta = -56.4$$



$$\theta = 360 - 56.4 = 303.6^\circ$$

$$\theta = 180 + 56.4 = 236.4^\circ$$

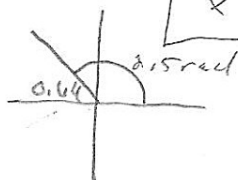
Solve for  $0 \leq x < 2\pi$ . Give answer to the nearest hundredth of a radian. Hint: Draw graphs to help find the angles.

8.  $\cos x = -0.8$

$$x = \cos^{-1}(-0.8)$$

$$x = 2.5 \text{ rad}$$

$$x = \pi + 0.64 = 3.78 \text{ rad}$$



9.  $3 \sin x + 4 = 2$

$$3 \sin x = -2$$

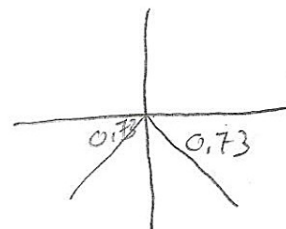
$$\sin x = -\frac{2}{3}$$

$$x = \sin^{-1}\left(-\frac{2}{3}\right)$$

$$x = -0.73$$

$$x = 2\pi - 0.73 = 5.55 \text{ rad.}$$

$$x = \pi + 0.73 = 3.87 \text{ rad.}$$

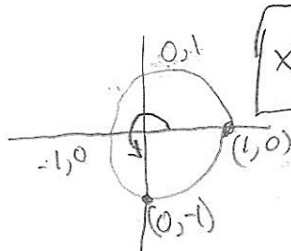


10.  $4 \sin x + 3 = -1$

$$4 \sin x = -4$$

$$\sin x = -1 = \frac{y}{r}$$

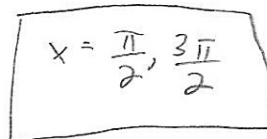
$$x = \frac{3\pi}{2}$$



11.  $\cos x + 5 = 5$

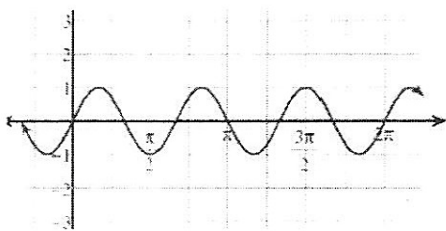
$$\cos x = 0 = \frac{x}{r}$$

$$x = \frac{\pi}{2}, \frac{3\pi}{2}$$



12.

Write a sine equation for the periodic function.

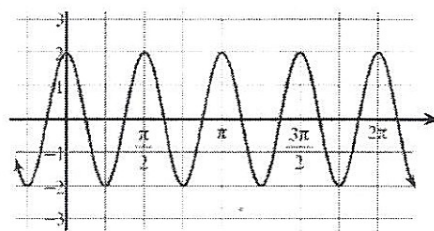


Freq. = 3

$$y = \sin 3x$$

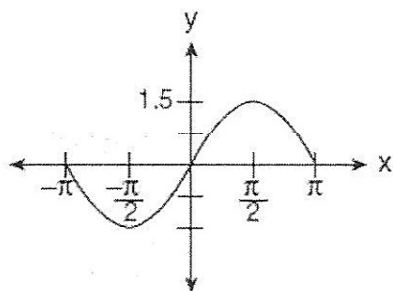
13.

Write a sine equation for the periodic function.



$$y = 2 \cos 4x$$

14. A radio transmitter sends a radio wave from the top of a 50-foot tower. The wave is represented by the accompanying graph.



What is the equation of this radio wave?

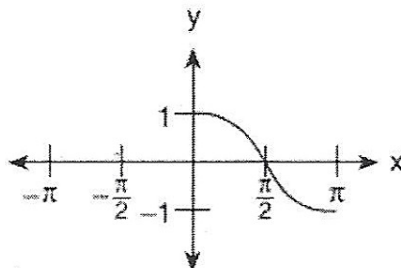
(1)  $y = \sin x$

(3)  $y = \sin 1.5x$

(2)  $y = 1.5 \sin x$

(4)  $y = 2 \sin x$

15. Which equation is represented by the accompanying graph?



(1)  $y = \cos x$

(3)  $y = \cos 2x$

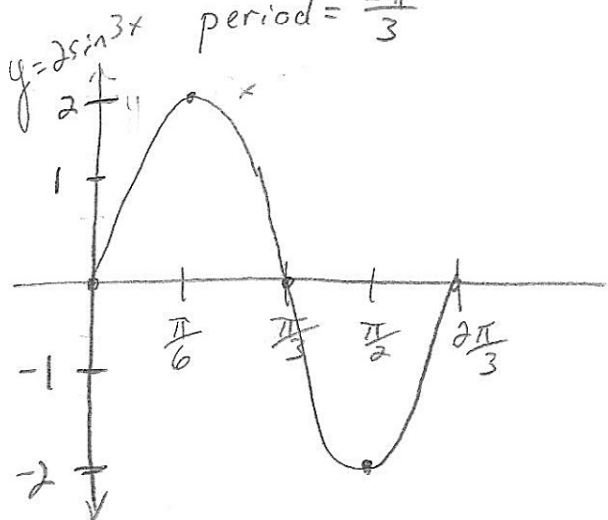
(2)  $y = \cos \frac{1}{2}x$

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

Find the amplitude, frequency and period of each function in radians. Then graph the function. There is no graph provided because it is probably easier to draw your own

16.  $y = 2\sin 3x$

$A = 2$     $\text{Frey.} = 3$   
 $\text{period} = \frac{2\pi}{3}$



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

$A = -3$   
 $B = \text{freq} = \frac{1}{2}$   
 $\text{period} = \frac{2\pi}{\frac{1}{2}} = 4\pi$

