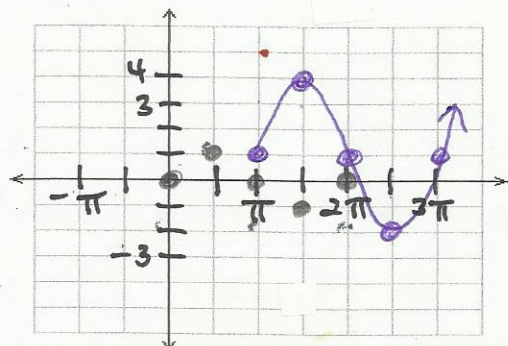


**I. Find the missing information and graph the given function. Graph MUST be ACCURATE!!!**

1.) Given Function:  $y = 3\sin(x - \pi) + 1$

amplitude =  $|3| = 3$  period =  $\frac{2\pi}{1} = 2\pi$

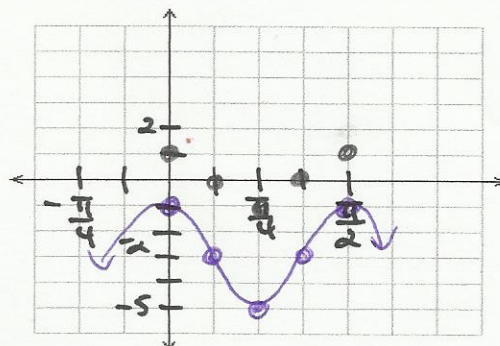
ph. shift =  $\frac{\pi}{1} = \pi$  (right) vert. shift = up 1



2.) Given Function:  $y = 2\cos(4x) - 3$

amplitude =  $|2| = 2$  period =  $\frac{2\pi}{4} = \frac{\pi}{2}$

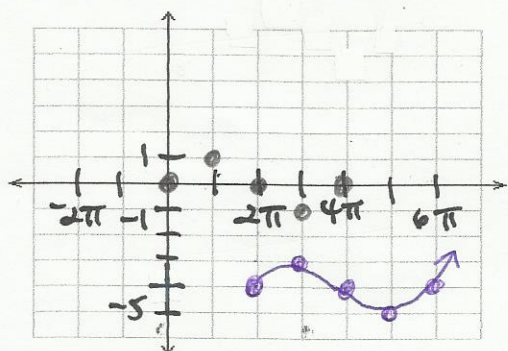
ph. shift = none vert. shift = down 3



3.) Given Function:  $y = \sin\left(\frac{1}{2}x - \pi\right) - 4$

amplitude =  $|1| = 1$  period =  $\frac{2\pi}{1/2} = 4\pi$

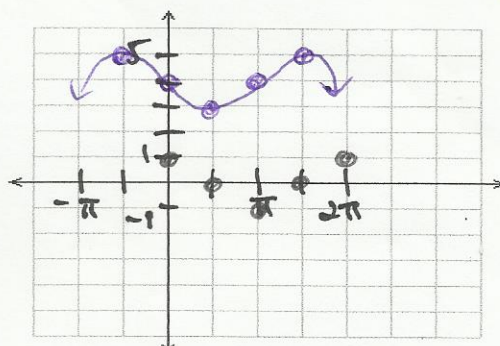
ph. shift =  $\frac{\pi}{1/2} = 2\pi$  (right) vert. shift = down 4



4.) Given Function:  $y = \cos\left(x + \frac{\pi}{2}\right) + 4$

amplitude =  $|1| = 1$  period =  $\frac{2\pi}{1} = 2\pi$

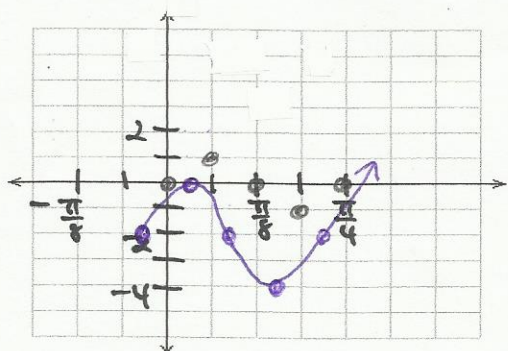
ph. shift =  $-\frac{\pi}{2} = -\frac{\pi}{2}$  (left) vert. shift = up 4



5.) Given Function:  $y = 2\sin\left(8x + \frac{\pi}{4}\right) - 2$

amplitude =  $|2| = 2$  period =  $\frac{2\pi}{8} = \frac{\pi}{4}$

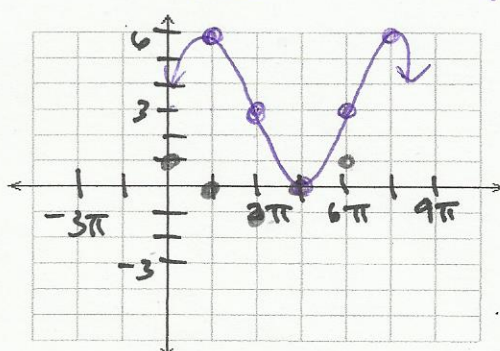
ph. shift =  $\frac{\pi}{8} = \frac{\pi}{8}$  (left) vert. shift = down 2



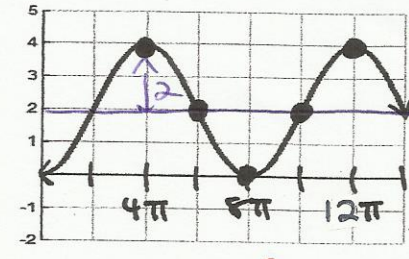
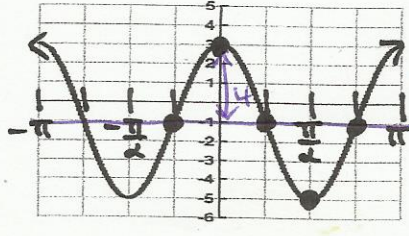
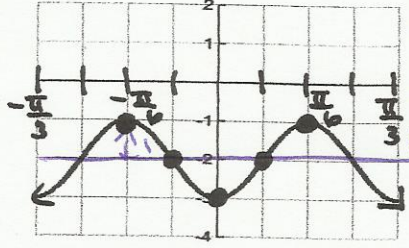
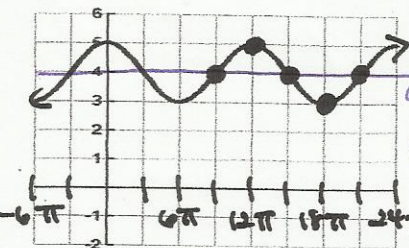
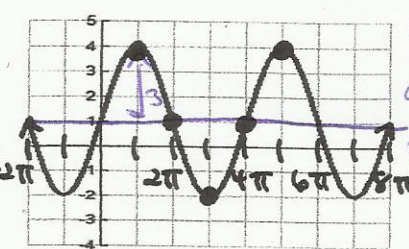
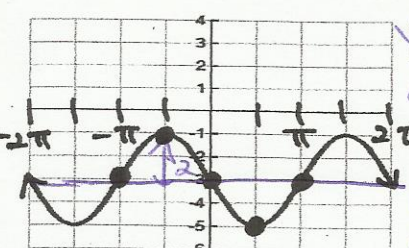
6.) Given Function:  $y = 3\cos\left(\frac{1}{3}x - \frac{\pi}{2}\right) + 3$

amplitude =  $|3| = 3$  period =  $\frac{2\pi}{1/3} = 6\pi$

ph. shift =  $\frac{\pi}{3} = \frac{\pi}{3}$  (right) vert. shift = up 3



## II. Find the missing information of each given graph to write the function's equation. Show work!

Given/Missing Information	Work to Find a, b, c, and d	Equation for Function
<p>7.)</p>  <p> <math>y = \cos x</math>  amp = 2  perd = <math>8\pi</math>  right <math>4\pi</math>  up 2 </p>	<p> <math>a = 2</math>  <math>b = \frac{2\pi}{8\pi}</math>  <math>b = \frac{1}{4}</math>  <math>c = -\frac{1}{4} \cdot 4\pi</math>  <math>c = -\pi</math>  <math>d = 2</math> </p>	<p><math>y = 2 \cos\left(\frac{1}{4}x - \pi\right) + 2</math></p>
<p>8.)</p>  <p> <math>y = \sin x</math>  amp = 4  perd = <math>\pi</math>  left <math>\frac{\pi}{4}</math>  down 1 </p>	<p> <math>a = 4</math>  <math>b = \frac{2\pi}{\pi}</math>  <math>b = 2</math>  <math>c = -2 \cdot -\frac{\pi}{4}</math>  <math>c = \frac{\pi}{2}</math>  <math>d = -1</math> </p>	<p><math>y = 4 \sin\left(2x + \frac{\pi}{2}\right) - 1</math></p>
<p>9.)</p>  <p> <math>y = \cos x</math>  amp = 1  perd = <math>\frac{\pi}{3}</math>  left <math>\frac{\pi}{6}</math>  down 2 </p>	<p> <math>a = 1</math>  <math>b = \frac{2\pi}{\pi/3}</math>  <math>b = 6</math>  <math>c = -6 \cdot -\frac{\pi}{6}</math>  <math>c = \pi</math>  <math>d = -2</math> </p>	<p><math>y = \cos(6x + \pi) - 2</math></p>
<p>10.)</p>  <p> <math>y = \sin x</math>  amp = 1  perd = <math>12\pi</math>  right <math>9\pi</math>  up 4 </p>	<p> <math>a = 1</math>  <math>b = \frac{2\pi}{12\pi}</math>  <math>b = \frac{1}{6}</math>  <math>c = -\frac{1}{6} \cdot 9\pi</math>  <math>c = -\frac{3\pi}{2}</math>  <math>d = 4</math> </p>	<p><math>y = \sin\left(\frac{1}{6}x - \frac{3\pi}{2}\right) + 4</math></p>
<p>11.)</p>  <p> <math>y = \cos x</math>  amp = 3  perd = <math>4\pi</math>  right <math>\pi</math>  up 1 </p>	<p> <math>a = 3</math>  <math>b = \frac{2\pi}{4\pi}</math>  <math>b = \frac{1}{2}</math>  <math>c = -\frac{1}{2} \cdot \pi</math>  <math>c = -\frac{\pi}{2}</math>  <math>d = 1</math> </p>	<p><math>y = 3 \cos\left(\frac{1}{2}x - \frac{\pi}{2}\right) + 1</math></p>
<p>12.)</p>  <p> <math>y = \sin x</math>  amp = 2  perd = <math>2\pi</math>  left <math>\pi</math>  down 3 </p>	<p> <math>a = 2</math>  <math>b = \frac{2\pi}{2\pi}</math>  <math>b = 1</math>  <math>c = -1 \cdot \pi</math>  <math>c = -\pi</math>  <math>d = -3</math> </p>	<p><math>y = 2 \sin(x + \pi) - 3</math></p>