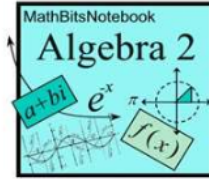


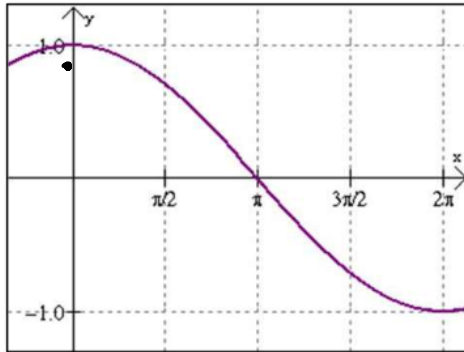
Practice Sine and Cosine Graphs

Name _____

Directions: Do NOT use your calculator for these problems. Use for checking only.



1. Determine an equation for this graph:



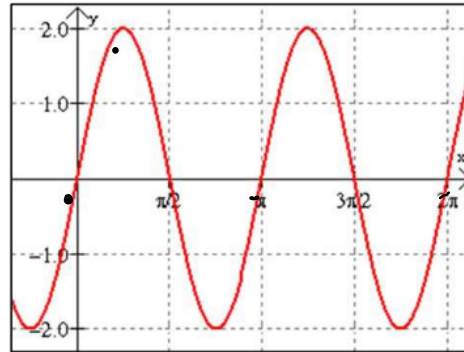
1) $y = \cos(2x)$

2) $y = 2\cos(x)$

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

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

2. Determine an equation for this graph:



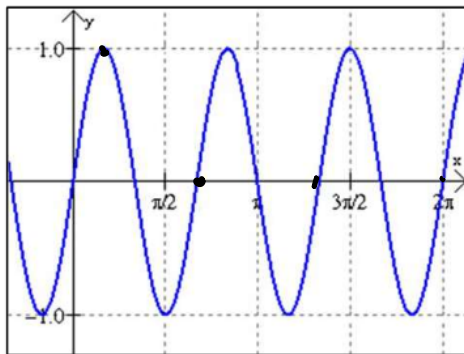
1) $y = 2\sin\left(\frac{1}{2}x\right)$

2) $y = 2\sin(2x)$

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

4) $y = 2\cos(2x)$

3. Determine an equation for this graph:



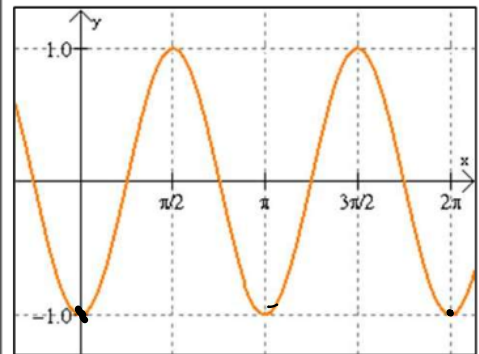
1) $y = \sin(x)$

2) $y = \cos(3x)$

3) $y = \sin(3x)$

4) $y = \sin\left(\frac{1}{3}x\right)$

4. Determine an equation for this graph:



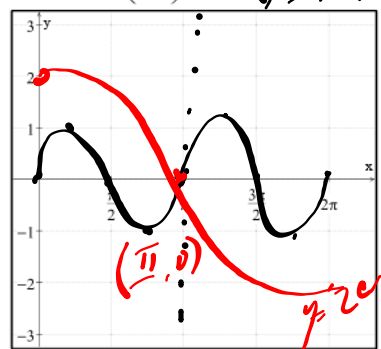
1) $y = -\cos(2x)$

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

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

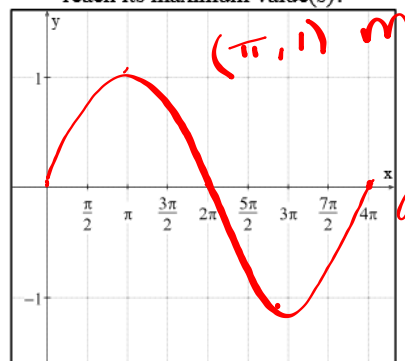
4) $y = -2\cos\left(\frac{1}{2}x\right)$

5. On the same set of axes from 0 to 2π , graph:
 $y = 2\cos\left(\frac{1}{2}x\right)$ and $y = \sin(2x)$



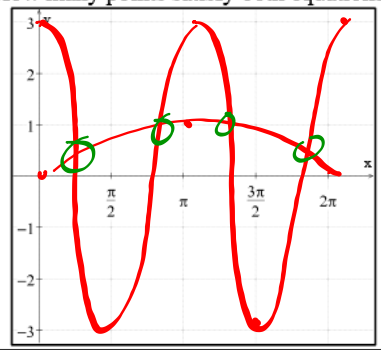
$\frac{1}{2}$ curve \sin $0, 1, 0, -1, 0$
 $\frac{1}{2}, 0, -1, 0, \frac{1}{2}$

6. On the same set of axes from 0 to 4π , graph:
 $y = \sin\left(\frac{1}{2}x\right)$. Where on the graph does the graph reach its maximum value(s)?



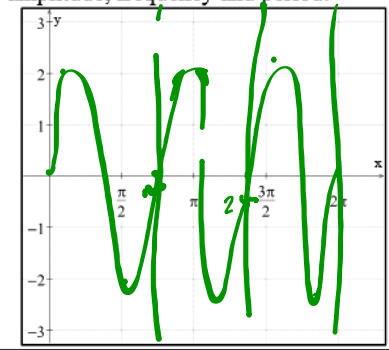
$y = \sin\left(\frac{1}{2}x\right)$

7. On the same set of axes from 0 to 2π , graph:
 $y = 3\cos(2x)$ and $y = \sin\left(\frac{1}{2}x\right)$.
 How many points satisfy both equations?



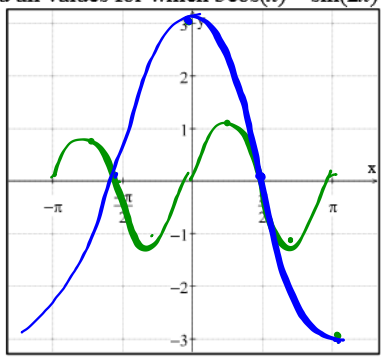
4 points

8. On the same set of axes from 0 to 2π , graph:
 $y = 2\sin(3x)$
 State amplitude, frequency and period.



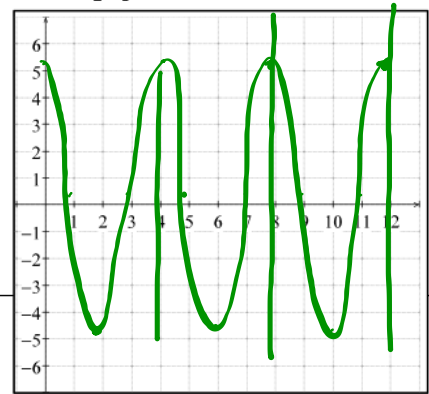
$P = \frac{2\pi}{3} = 120$
 AM $a = 2$
 freq $= 3$
 $P = \frac{2\pi}{3}$

9. On the same set of axes, $-\pi \leq x \leq \pi$, graph:
 $y = 3\cos(x)$ and $y = \sin(2x)$.
 Find all values for which $3\cos(x) - \sin(2x) = 0$.



$-\pi, \frac{\pi}{2}, \pi$
 $-\pi, \frac{\pi}{2}, \pi$
 $0, 0, 0, 0$
 $3, 0, 3, 0, 3$
 $1, 1, 1, 1$
 $2, 2, 2, 2$

10. A small toy attached to the end of a slinky bobs up and down according to an equation form $d = a \cos(bt)$. The motion of the toy starts at its highest position of 5 inches above its rest point, bounces down to its lowest position of 5 inches below its rest point, and then bounces back to its highest position in a total of 4 seconds. Write an equation and graph from $t = 0$ sec to $t = 12$ sec.



$a = 5$
 $b = 3$