5.5

Determine the amplitude, period, phase (horizontal) shift, end of basic cycle, and vertical shift of each function. Then sketch a graph of each one.

1. $y = \sin(x)$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

2. $y = 3\sin(x)$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

3. $y = 3\sin(x) - 1$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

4. $y = 4\ \mathrm{Sin}(x) - 2$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

5. $y = \sin(x - \pi) + 3$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

6. $y = 2\sin(2x) - 2$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

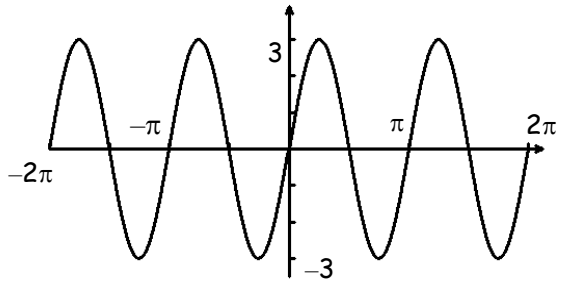
7. $y = \sin(\frac{1}{2}x - \pi) - 1$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

8. $y = -4\sin(x - \pi)$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

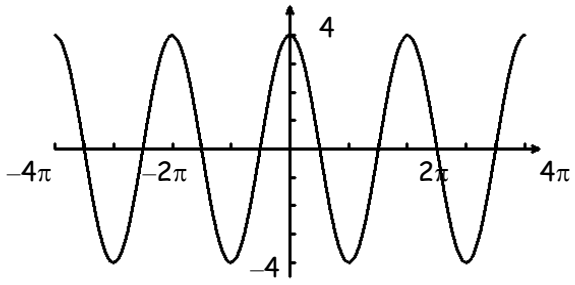
9. $y = 3\sin(-2x)$
   Amp. = _____
   Period = _____
   H.S.=_____
   End cycle=_____
   V.S.=_____

Give the amplitude and period of each function graphed below. Then write an equation of each graph.

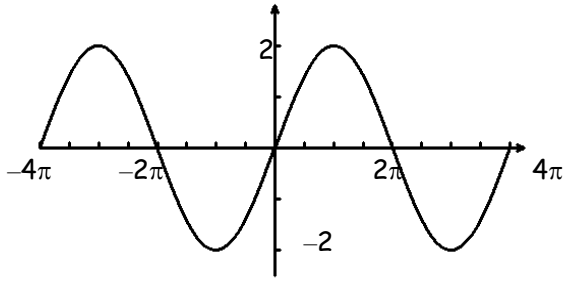
10.



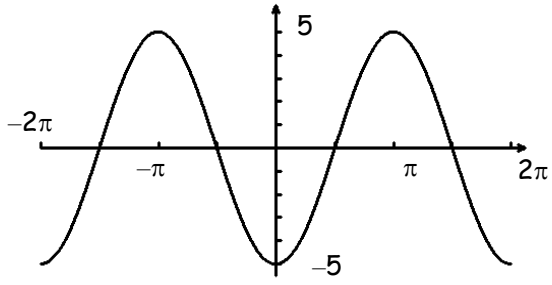
11.



12.



13.



Do on your own paper.

Determine the amplitude, period, phase shift, and vertical shift for each.

1. $y = 2 \sin 3x$
2. $y = \sin (x - \pi)$
3. $y = 3 \cos 4x$
4. $y = 3 \sin 6x - 3$
5. $y = \cos 2x - 5$
6. $y = \cos (x - \pi)$
7. $y = \frac{1}{4} \sin 2x$
8. $y = 3 \cos \frac{1}{2} x + 4$

Sketch the graph of each function for one period.

9. $y = \sin 2x + 3$
10. $y = \cos 2x - 1$
11. $y = \sin (x - \pi) - 1$
12. $y = 3 \sin x - 1$
13. $y = \cos 2(x - \pi)$
14. $y = \sin \frac{1}{2} (x - \pi) + 2$
15. Find an equation for a sine function that has amplitude of 4, a period of 180°, and a y-intercept of −3.
16. Find an equation for a cosine function that has an amplitude of $\frac{3}{5}$, a period of 270°, and a y-intercept of 5.