

State the amplitude, period, phase shift and vertical shift for each of the following functions. Then graph one complete period of each, remembering to label the tick divisions on both your horizontal axis and vertical axis. Also state the domain and range of one period using interval notation.

*** Remember: $\theta \rightarrow$ *degrees* and $x \rightarrow$ *radians*.

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

2. $y = -2 \sin(4\theta + 40^\circ)$

3. $y = -\cos 3\theta + 2$

4. $f(x) = 5 \sin 2x - 3$

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

6. $y = 3 \sin(-2x) + 2$

7. $y = 2 \sin\left(\frac{1}{2}x + \frac{\pi}{2}\right) + 4$

8. $y = -2 \cos \frac{3\pi x}{4} + 1$

9. Complete the following statements: $4 \sin(-3x) =$ _____ (b) $4 \cos(-3x) =$ _____

10. A negative phase shift will move the graph of a sinusoid to the: (a) right (b) left

A positive phase shift will move the graph of a sinusoid to the: (a) right (b) left

11. The horizontal axis represents the _____ of a sinusoidal function. (a) phase shift (b) vertical shift

12. Given: The domain of a sinusoid is $[-82^\circ, 998^\circ]$

(a) The phase shift of the function is _____ (b) The period of the function is _____

(c) List the 5 ticks that will appear along the x axis when this function is graphed.

13. Given: The range of a sinusoidal function is $[-24, -7]$. Find the following:

(a) amplitude of the function _____ (b) vertical shift of the function _____

14. Given $y = -4 \cos\left(\frac{5x}{3} - \frac{4\pi}{3}\right) + 1$. Find the following:

Amplitude _____ Period _____ Phase shift _____ Vertical shift _____

15. Write the equation of a sine function whose domain is $[8^\circ, 68^\circ]$ and whose range is $[4, 7]$.

16. If you are writing the equation of a sinusoidal function and you are given only the maximum and/or minimum values of the function, then the BEST function to choose would be: (a) sine (b) cosine