

Graphing Sine and Cosine

$$y = a\sin(kx)$$

$$y = a\cos(kx)$$

$$k > 0$$

$$\text{Amp} = |a| \text{ and Period } p = \frac{2\pi}{k}$$

$$\text{Interval of One Cycle} = [0, p]$$

Determine the amplitude, period, interval of one cycle, x-intercepts, max value, min value.

1. $y = 3\sin(4x)$

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

3. $y = -\sin(\pi x)$

4. $y = -\sin(2\pi x)$

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

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

7. $y = 4\sin(2x)$

8. $y = 5\sin(3x)$

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

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

11. $y = -2\sin\left(\frac{x}{4}\right)$

$$12. y = -3\sin\left(\frac{x}{2}\right)$$

$$13. y = -\cos\left(\frac{x}{2}\right)$$

$$14. y = 5\cos\left(\frac{x}{4}\right)$$

$$15. y = \sin(4x)$$

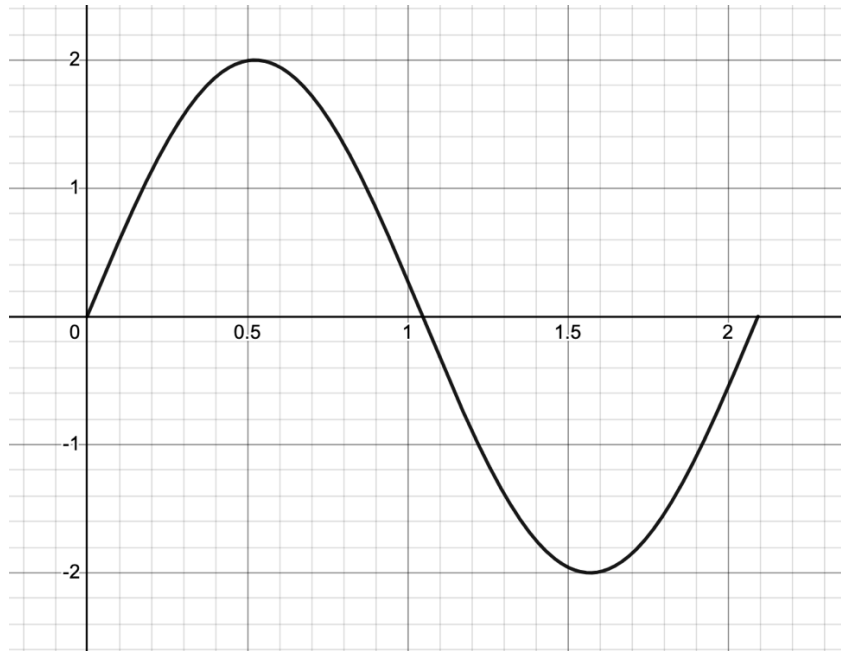
$$16. y = \sin(6\pi x)$$

$$17. y = \cos(3\pi x)$$

$$18. y = \frac{5}{2}\cos(-4x)$$

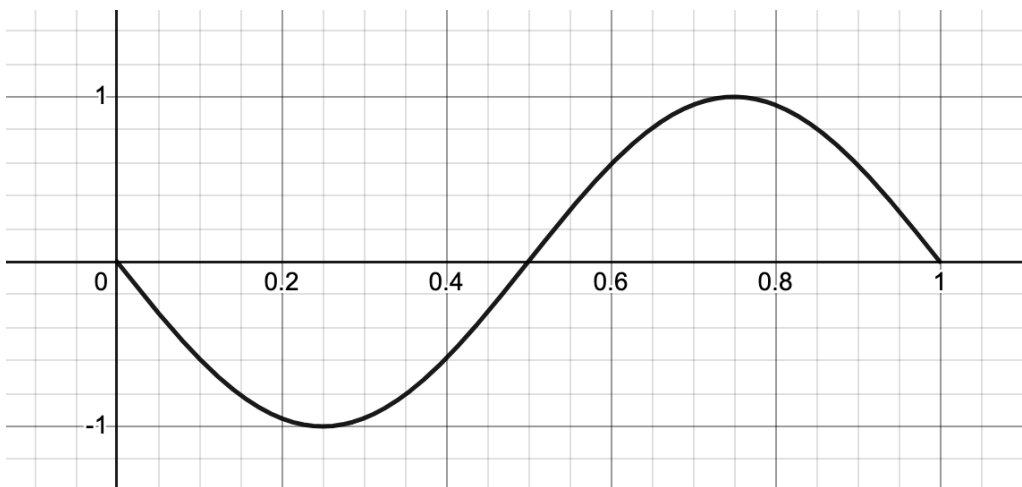
Answers

2.



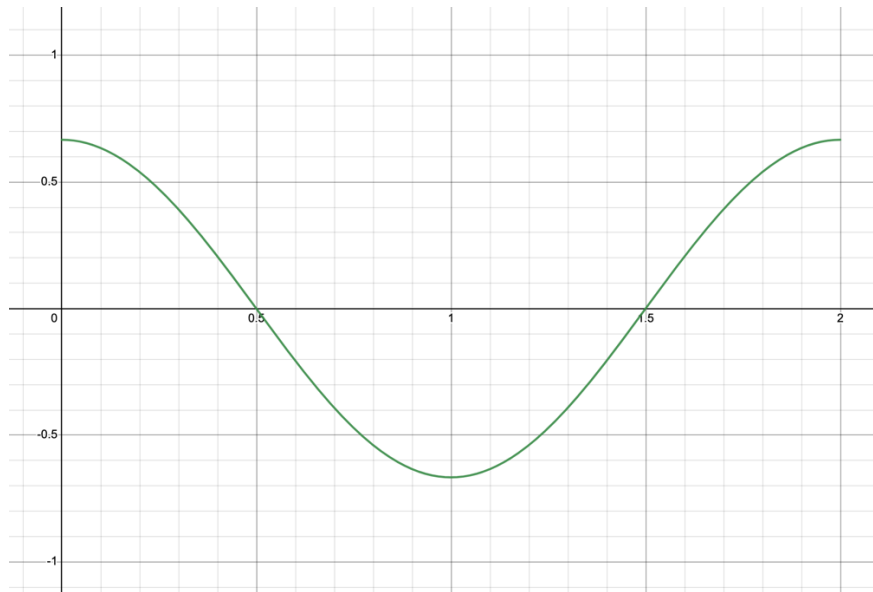
$$\text{Amp}=2, P=\frac{2\pi}{3}, I=[0, \frac{2\pi}{3}], \text{Max}=2, \text{Min}=-2$$

4.



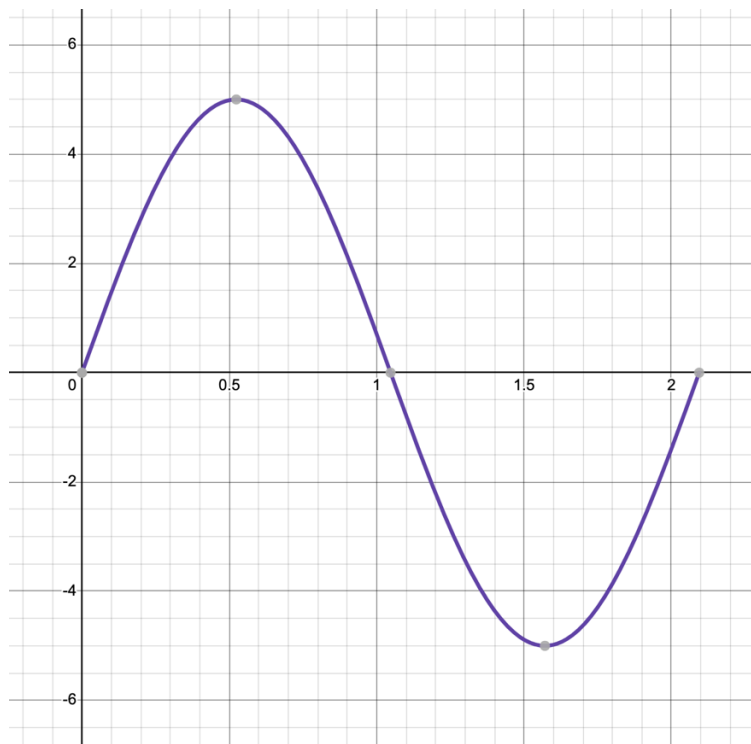
$$\text{Amp}=1, P=1, I=[0, 1], \text{Max}=1, \text{Min}=-1$$

6.



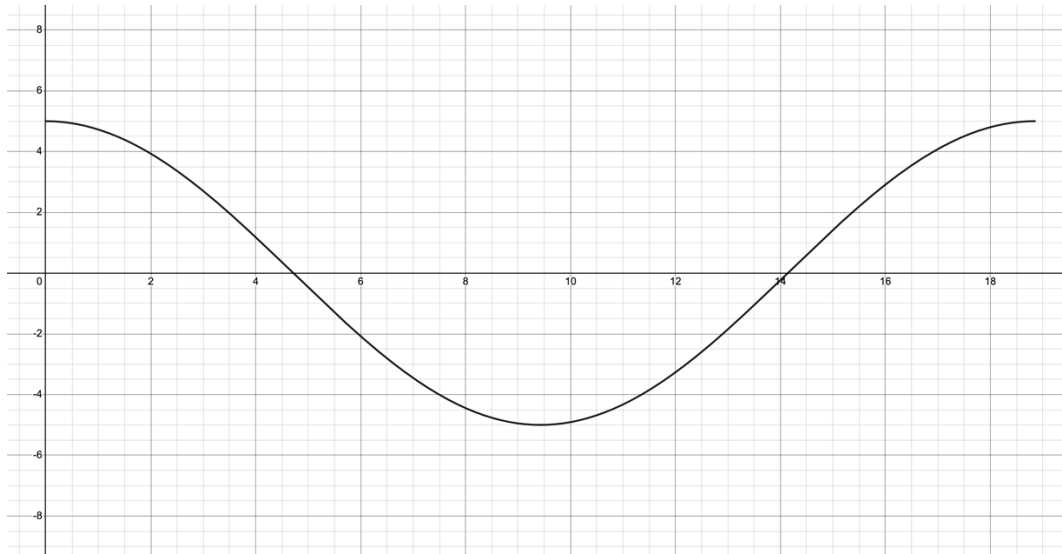
$$\text{Amp}=\frac{2}{3}, P=2, I=[0,2], \text{Max}=\frac{2}{3}, \text{Min}=-\frac{2}{3}$$

8.



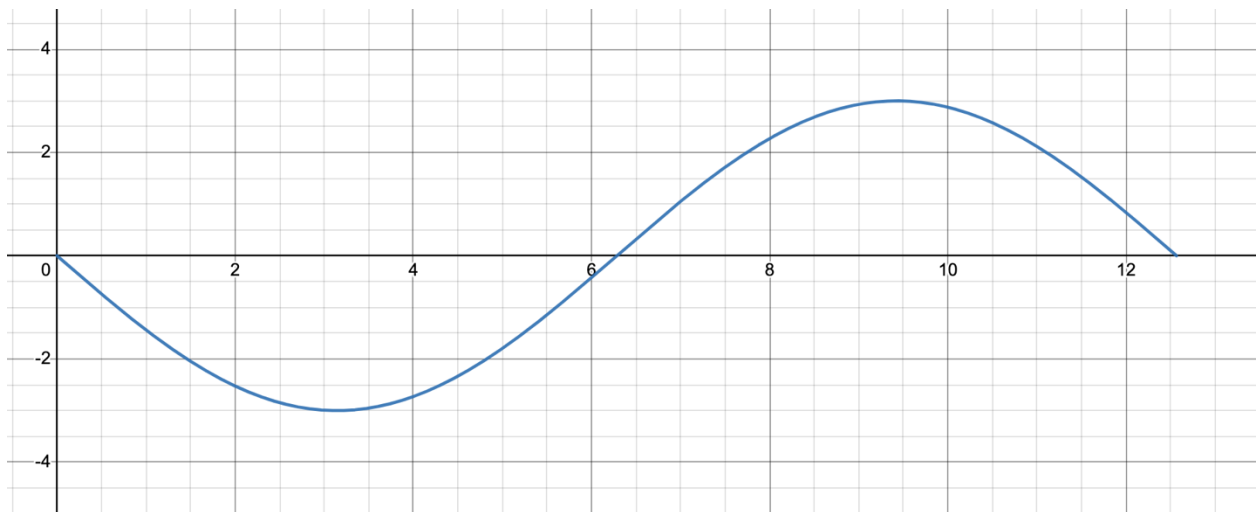
$$\text{Amp}=5 P=\frac{2\pi}{3}, I=[0,\frac{2\pi}{3}], \text{Max}=5,, \text{Min}=-5$$

10.



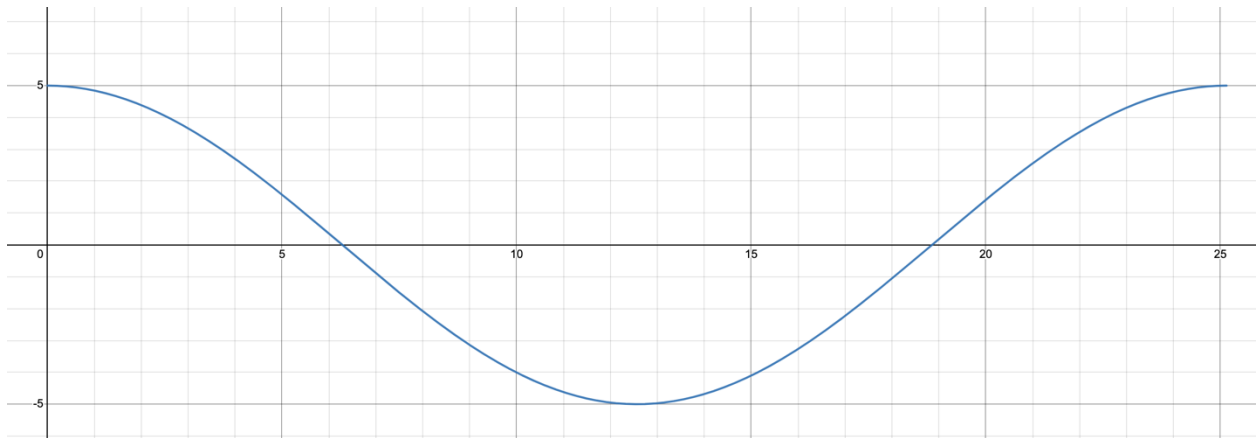
Amp=5 $P=6\pi$, $I=[0,6\pi]$, Max=5,, Min=-5

12.



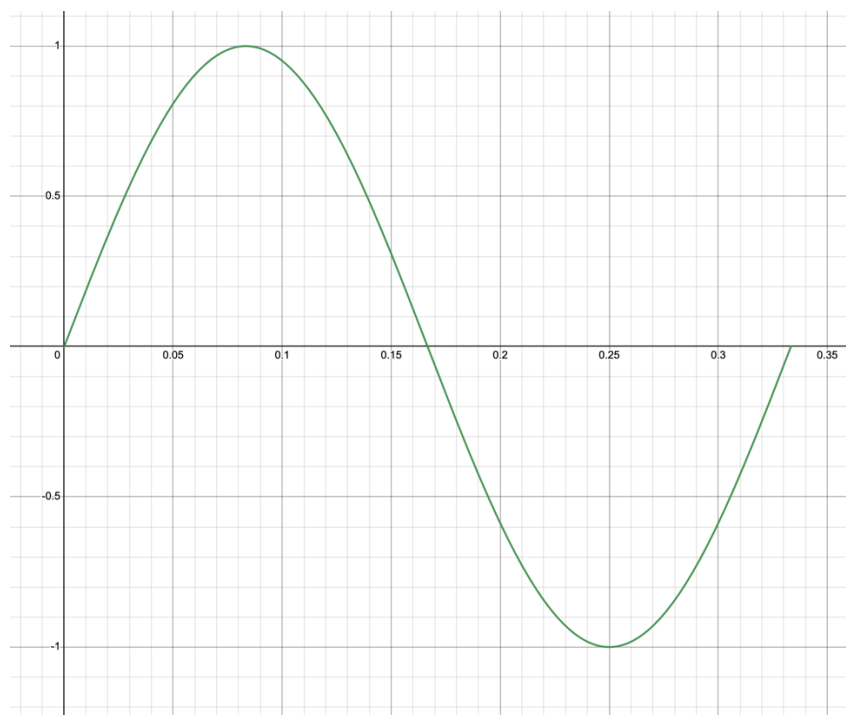
Amp=3 $P=4\pi$, $I=[0,4\pi]$, Max=3, Min=-3

14.



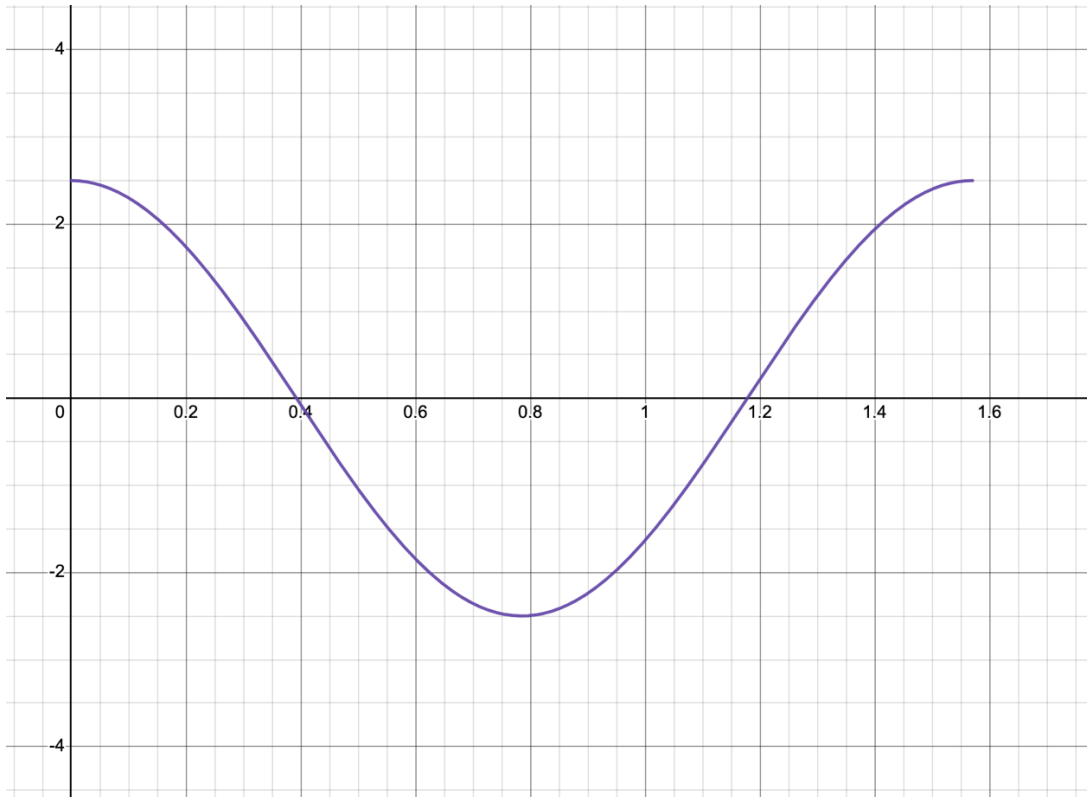
Amp=3 $P=8\pi$, $I=[0,8\pi]$, Max=3, Min=-3

16.



Amp=1 $P=\frac{1}{3}$, $I=[0,\frac{1}{3}]$, Max=1, Min=-1

18.



$$\text{Amp}=\frac{5}{2}, P=\frac{\pi}{2}, I=[0,\frac{\pi}{2}], \text{Max}=\frac{5}{2}, \text{Min}=-\frac{5}{2}$$