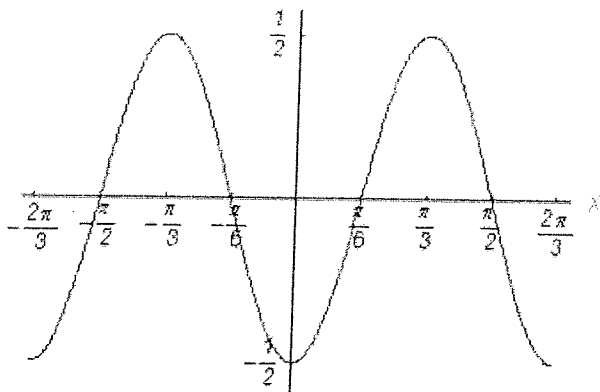


For the given graph, state the equation of the graph for the given conditions.

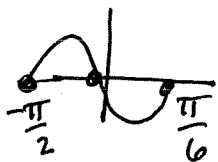


a.) Phase Shift = $-\frac{\pi}{2}$ using the sine function.

b.) Phase Shift = $-\frac{\pi}{6}$ using the sine function.

$$\text{phase} = \frac{-C}{B} = -\frac{\pi}{2}$$

$$\text{period} = \frac{2\pi}{B}$$



$$\frac{\pi}{6} - -\frac{\pi}{2} = \frac{\pi}{6} + \frac{\pi}{2} = \frac{\pi}{6} + \frac{3\pi}{6} = \frac{4\pi}{6} = \frac{2\pi}{3}$$

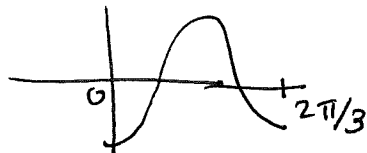
$$\text{period} = \frac{2\pi}{B} = \frac{2\pi}{3} \Rightarrow B = 3 \quad A = \frac{1}{2}$$

$$\frac{-C}{3} = -\frac{\pi}{2} \Rightarrow C = \frac{3\pi}{2}$$

$$y = \frac{1}{2} \sin\left(3x + \frac{3\pi}{2}\right)$$

c.) Phase Shift = 0 using the cosine function.

d.) Phase Shift = $-\frac{\pi}{3}$ using the cosine function.

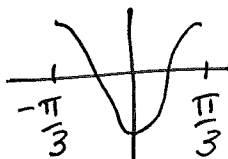


$$\text{Period} = \frac{2\pi}{3} - 0 = \frac{2\pi}{3} = \frac{2\pi}{B} \Rightarrow B = 3$$

$$\text{Phase} = \frac{-C}{B} = \frac{-C}{3} = 0 \Rightarrow C = 0$$

$$A = -1/2$$

$$y = -\frac{1}{2} \cos(3x + 0)$$



$$\text{period} = \frac{\pi}{3} - -\frac{\pi}{3} = \frac{2\pi}{3} = \frac{2\pi}{B} \Rightarrow B = 3$$

$$\text{Phase} = \frac{-\pi}{3} = \frac{-C}{3} = \frac{-C}{3} \Rightarrow C = \pi$$

$$A = \frac{1}{2}$$

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