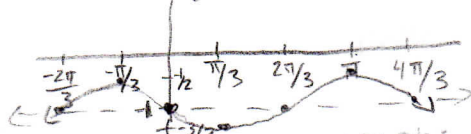


Find the equ. for:

$$\text{midline} = \frac{\text{max} + \text{min}}{2}$$

$$b = \frac{2\pi}{\text{per}}$$



$A = \pm$ Amplitude

1.) Sinusoidal graphs are graphs of sine & cosine functions. Sinusoids are considered to be the general form of the sine function, & every sine function can be represented as a cosine function.

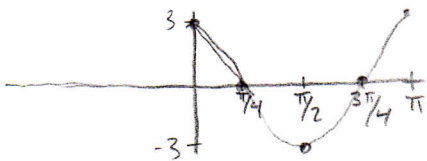
$$\cos x = \sin\left(x + \frac{\pi}{2}\right) \rightarrow \sin x \text{ shifted } \left(\frac{\pi}{2}\right) \text{ units}$$

2.) a.) $y = 3 \cos(2x)$; $y = A \cos(bx)$

5 keypoints

- $(0, 3)$
- $(\pi/4, 0)$
- $(\pi/2, -3)$
- $(3\pi/4, 0)$
- $(\pi, 3)$

Amp = $|3| = 3$ $A = 3, b = 2$
 per = $\frac{2\pi}{b} = \frac{2\pi}{2} = \pi$ inc = $\frac{\text{per}}{4} = \frac{\pi}{4}$

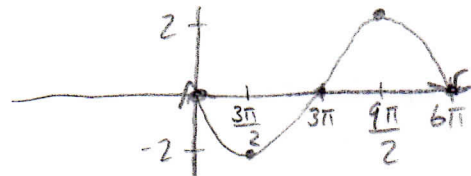


b.) $y = -2 \sin(1/3x)$ $A = -2, b = 1/3$

Amp = $|-2| = 2$ per = $\frac{2\pi}{b} = \frac{2\pi}{1/3} = 6\pi$
 inc = $\frac{\text{per}}{4} = \frac{6\pi}{4} = \frac{3\pi}{2}$

5 keypoints

- $(0, 0)$
- $(\frac{3\pi}{2}, -2)$
- $(3\pi, 0)$
- $(\frac{9\pi}{2}, 2)$
- $(6\pi, 0)$



3.) When finding the equ. of a sin/cos graph: $y = A \sin(bx)$ or $y = A \cos(bx)$

① Det whether graph is sin ($y\text{-int} = 0$) or cos ($y\text{-int} \neq 0$)

② $A = \pm$ Amplitude

- a.) If sine graph (+Amp if graph \uparrow after $x=0$, -Amp if graph \downarrow after $x=0$)
- b.) If cosine graph ($A = y\text{-int}$)

③ $b = \frac{2\pi}{\text{per}}$

④ Write equ. filling in A & b values