

Ex $y = 1 - 2 \sec(x)$

$a = -2$

$b = 1$

$c = 0$

$d = 1$

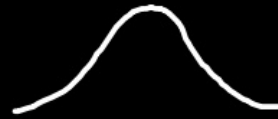
$A = |-2| = 2$

$P = \frac{2\pi}{|b|} = \frac{2\pi}{1} = 2\pi$

$\frac{P}{4} = \frac{2\pi}{4} = \left(\frac{\pi}{2}\right)$

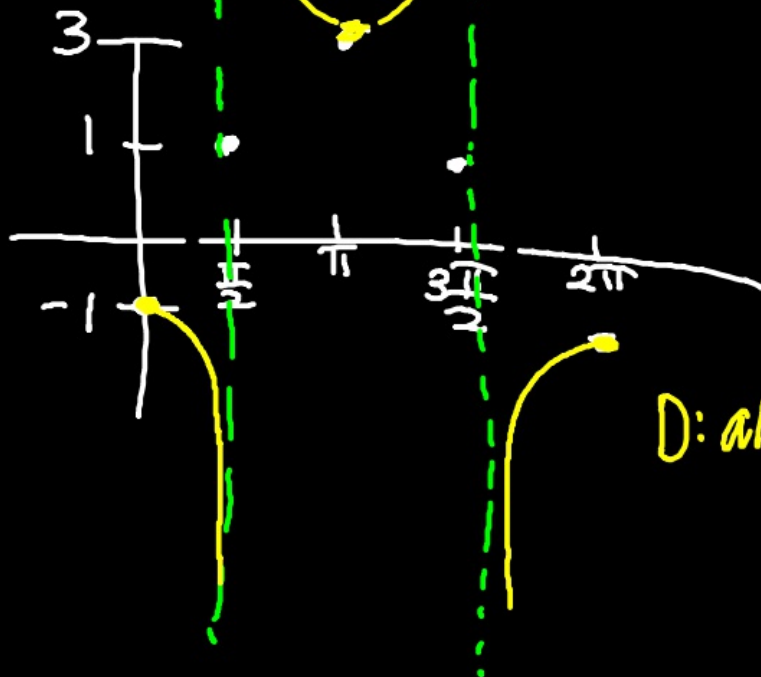
pretend cosine

PS: $x = 0$



$(0, -1)$ ~~$(\frac{\pi}{2}, 1)$~~ $(\pi, -3)$ ~~$(\frac{3\pi}{2}, 1)$~~ $(2\pi, -1)$

L M H M L



VA

$x = \frac{\pi}{2}$

$x = \frac{3\pi}{2}$

D: all \mathbb{R} , except

$x = \frac{3\pi}{2} + \pi n$

$$B) \quad y = 3 \csc \left(x + \frac{\pi}{6} \right) = 0$$

$$a=3 \quad b=1 \quad c=\frac{\pi}{6} \quad d=0$$

$$A=|3|=3$$

$$P = \frac{2\pi}{b} = \frac{2\pi}{1} = 2\pi$$

$$\frac{P}{4} = \frac{2\pi}{4} = \frac{\pi}{2}$$

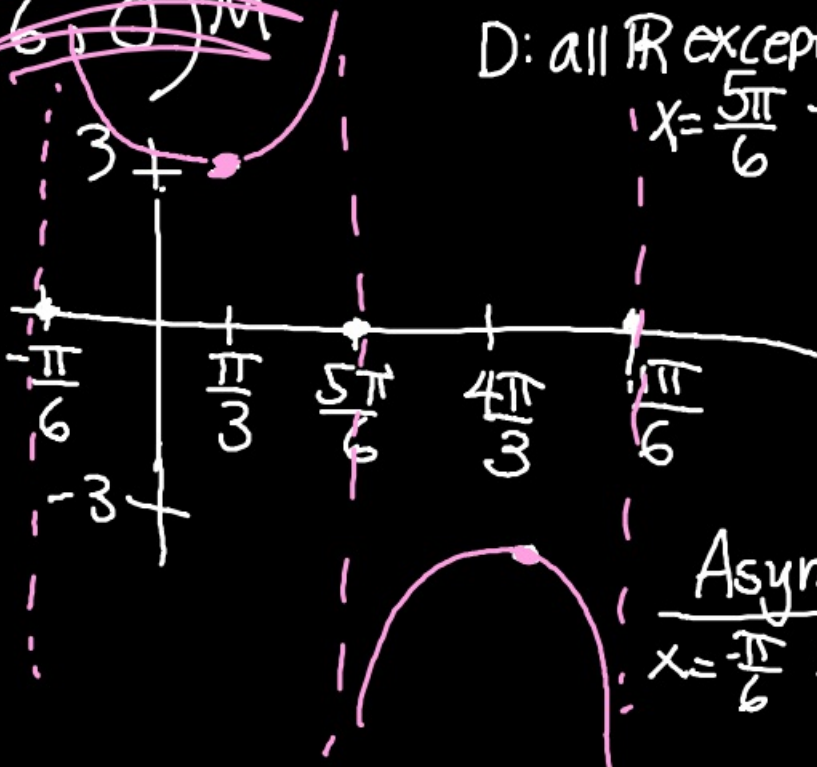
$$x = -\frac{\pi}{6} \quad \frac{\pi}{2}$$

$$\left(-\frac{\pi}{6}, 0 \right) M \quad \left(\frac{4\pi}{3}, -3 \right) L$$

$$\left(\frac{\pi}{3}, 3 \right) H \quad \left(\frac{11\pi}{6}, 0 \right) M$$

$$\left(\frac{5\pi}{6}, 0 \right) M$$

D: all \mathbb{R} except
 $x = \frac{5\pi}{6} + \pi n$



Asymptote
 $x = -\frac{\pi}{6} \quad x = \frac{5\pi}{6}$

$$x = \frac{11\pi}{6}$$

Create an eqn from Given Info

I. From pieces of info

$$A. A = 3 \quad P = \frac{\pi}{7} \quad PS = -\frac{\pi}{3} \quad VS = 10$$

Write a cosine function.

$$y = d \pm a \cos(bx + c)$$

$$y = 10 \pm 3 \cos(bx + c)$$

$$\text{or } y = \pm 3 \cos(bx + c) + 10$$

$$P = \frac{2\pi}{b} \quad y = \pm 3 \cos(14x + c) + 10$$

$$\frac{\pi}{7} = \frac{2\pi}{b}$$

$$\frac{\pi}{\pi} b = \frac{14\pi}{\pi}$$

$$b = 14$$

$$PS = \frac{-c}{b}$$

$$-\frac{\pi}{3} = \frac{-c}{14}$$

$$-3c = -14\pi$$

$$c = \frac{14\pi}{3}$$

$$y = \pm 3 \cos\left(14x + \frac{14\pi}{3}\right) + 10$$

$$14x + \frac{14\pi}{3} = 0$$

$$\frac{14x}{14} = -\frac{14\pi}{3} \cdot \frac{1}{14}$$

$$x = -\frac{\pi}{3}$$

B. Write a sine equation reflected over the x-axis s.t.

$$A = \frac{1}{2} \quad P = 2 \quad PS = 3 \quad VS = -\frac{3}{4}$$

$$y = -\frac{3}{4} - \frac{1}{2} \sin(bx + c)$$

$$P = \frac{2\pi}{|b|} = \frac{2}{1}$$

$$y = -\frac{3}{4} - \frac{1}{2} \sin(\pi x + c)$$

$$2b = 2\pi$$

$$b = \pi$$

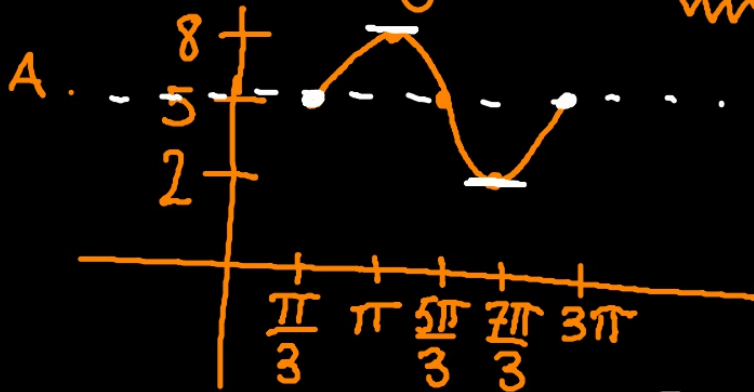
$$y = -\frac{3}{4} - \frac{1}{2} \sin(\pi x - 3\pi) \quad P.S.$$

$$\frac{c}{\pi} = \frac{3}{1}$$

$$3\pi = -c$$

$$c = -3\pi$$

II. From a graph



$$A = 3$$

$$P = 3\pi - \frac{\pi}{3}$$

$$P = \frac{8\pi}{3}$$

$$PS = \frac{\pi}{3}$$

$$VS = 5$$

$$\frac{2\pi}{b} = \frac{8\pi}{3} \quad A = 3$$

$$B = \frac{2}{3}$$

$$b = \frac{3}{4}$$

$$C = -2\pi$$

$$d = 5$$

$$5 + 3\sin\left(\frac{3}{4}x - \frac{\pi}{4}\right)$$

$$\frac{2\pi}{b} = \frac{8\pi}{3}$$

$$-\frac{C}{\frac{3}{4}} = \frac{\pi}{3}$$

$$8\pi b = 6\pi$$

$$-3C = \frac{3\pi}{4}$$

$$b = \frac{6}{8} = \frac{3}{4}$$

$$C = -\frac{\pi}{4}$$

$$C = -\frac{\pi}{4}$$

Tangent Graphs

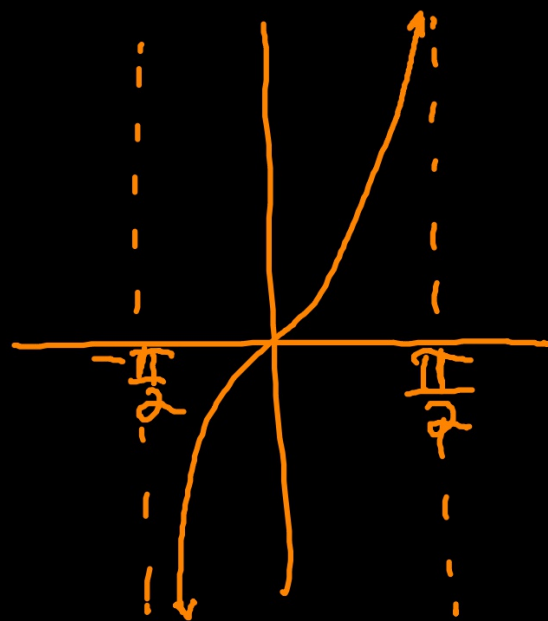
$$P = \frac{\pi}{|b|}$$

No amplitude

Asymptotes

$$x = -\frac{\pi}{2}$$

$$x = \frac{\pi}{2}$$



mother curve