

Ex Graph & state important info.

$$A) y = 3 + \tan(x - \pi)$$

$$a=1 \quad b=1 \quad c=-\pi \quad d=3$$

No amp.

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

Asymptotes

$$bx + c = -\frac{\pi}{2}$$

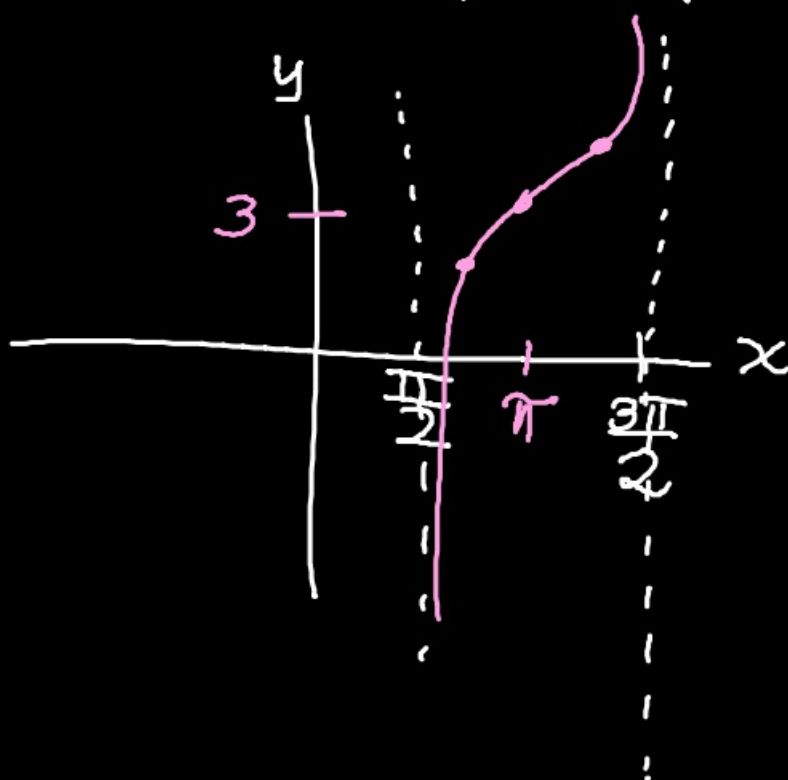
$$x - \pi = -\frac{\pi}{2}$$

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

$$bx + c = \frac{\pi}{2}$$

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

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

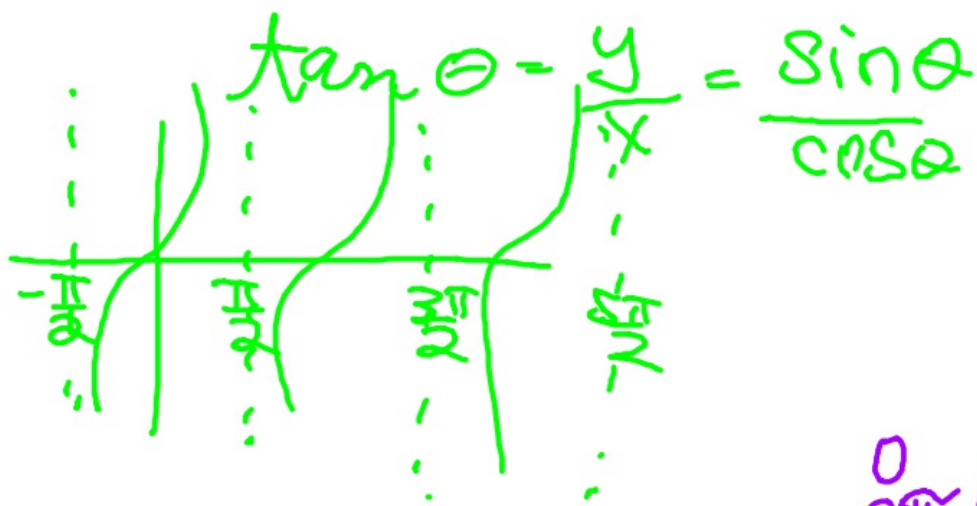


$x = \frac{\text{Add Asymp}}{2}$

Why asymp for  $\tan \theta$

$$-\frac{\pi}{2}, \frac{\pi}{2}$$

So where are asymp for  
 $\cot$ .



$$\tan \theta = \frac{y}{x} = \frac{\sin \theta}{\cos \theta}$$

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

$$\cot \theta = \frac{x}{y} = \frac{\cos \theta}{\sin \theta}$$

$$\theta = -\pi, 0, \pi, \text{etc} \dots$$

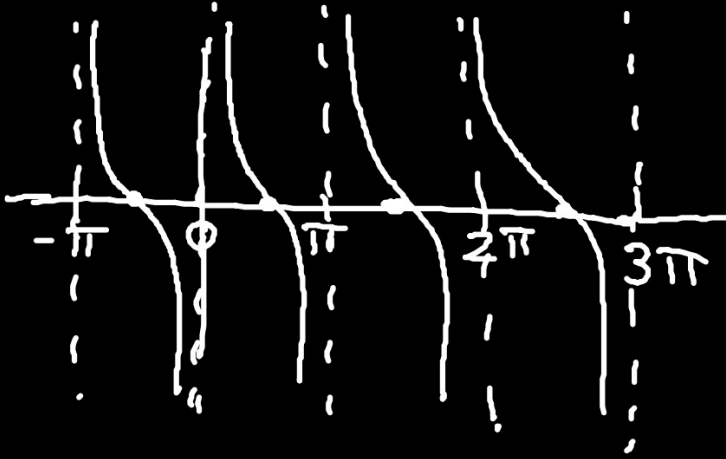
## Cotangent

No amplitude.

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

## Asymptotes

$$bx + c = 0 \quad \& \quad bx + c = \pi$$



Ex Graph.

$$y = -2 + \cot(2x - \pi)$$

$$a=1 \quad b=2 \quad c=-\pi \quad d=-2$$

no amp.  $P = \pi/2$

$$\left. \begin{array}{l} 2x - \pi = 0 \\ 2x = \pi \\ x = \pi/2 \end{array} \right\} \begin{array}{l} 2x - \pi = \pi \\ x = 2\pi/2 \\ x = \pi \end{array}$$



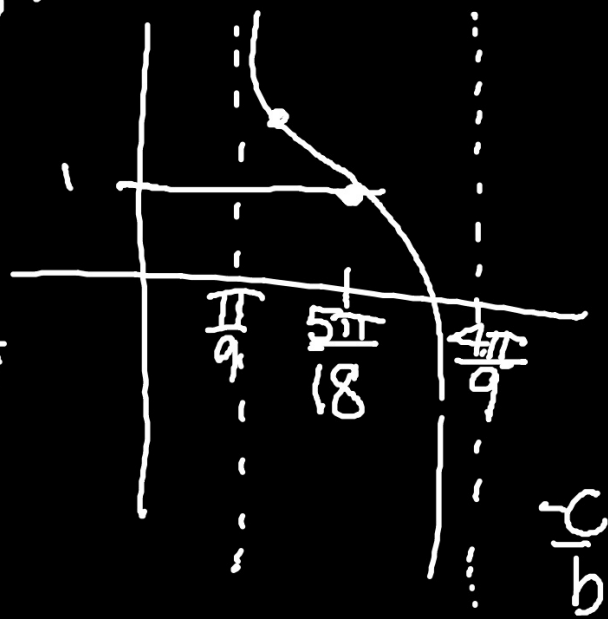
$$B) y = \cot\left(3x - \frac{\pi}{3}\right) + 1$$

No amp

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

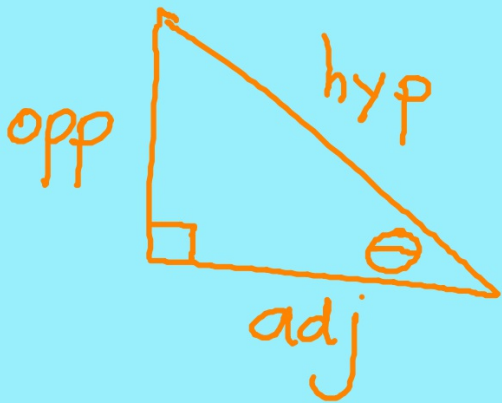
Asymp

$$\left. \begin{array}{l} 3x - \frac{\pi}{3} = 0 \\ x = \frac{\pi}{9} \end{array} \right\} \begin{array}{l} 3x - \frac{\pi}{3} = \frac{2\pi}{3} \\ 3x = \frac{4\pi}{3} \\ x = \frac{4\pi}{9} \end{array}$$



## Right $\Delta$ Trig

Soh Cah Toa

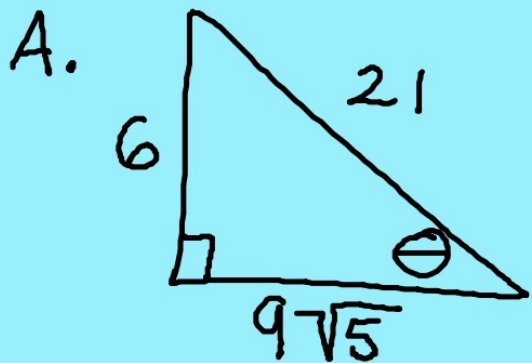


## Pythagorean Thm

$$a^2 + b^2 = c^2$$

$$\text{Side}^2 + \text{side}^2 = \text{hyp}^2$$

Ex State the 6 trig. functions.



$$36 + b^2 = 441$$

$$b^2 = 405$$

$$b = \sqrt{405} = \frac{5}{81} = 9 \sqrt{\frac{5}{9}}$$

$$b = 3 \cdot 3\sqrt{5} = 9\sqrt{5}$$

$$\sin \theta = \frac{6}{21} = \frac{2}{7}$$

$$\csc \theta = \frac{7}{2}$$

$$\cos \theta = \frac{9\sqrt{5}}{21} = \frac{3\sqrt{5}}{7}$$

$$\sec \theta = \frac{7}{3\sqrt{5}} \text{ or } \frac{7\sqrt{5}}{15}$$

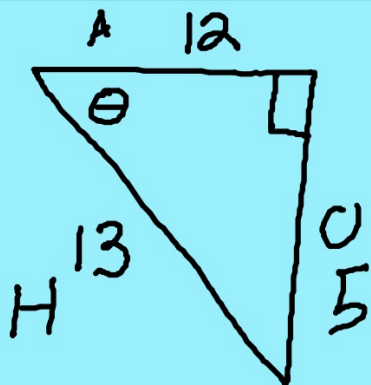
$$\tan \theta = \frac{6}{9\sqrt{5}} = \frac{2\sqrt{5}}{3\sqrt{5}\sqrt{5}}$$

$$\cot \theta = \frac{3\sqrt{5}}{2}$$

$$= \frac{2\sqrt{5}}{15}$$



B.



$$\begin{aligned}12^2 + b^2 &= 13^2 \\144 + b^2 &= 169 \\b^2 &= 25 \\b &= 5\end{aligned}$$

$$\sin \theta = \frac{5}{13}$$

$$\csc \theta = \frac{13}{5}$$

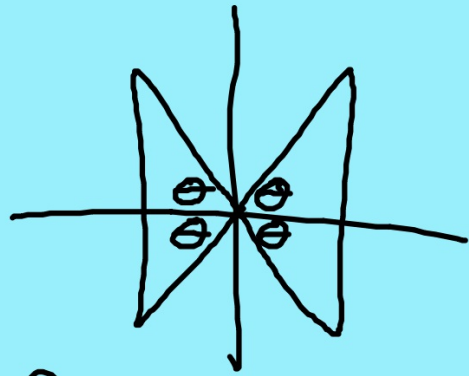
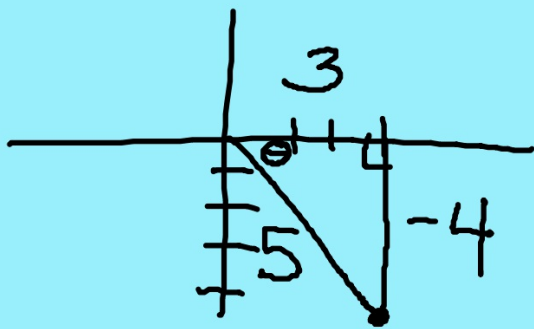
$$\cos \theta = \frac{12}{13}$$

$$\sec \theta = \frac{13}{12}$$

$$\tan \theta = \frac{5}{12}$$

$$\cot \theta = \frac{12}{5}$$

C. (3, -4)



$$\sin \theta = -\frac{4}{5}$$

$$\csc \theta = -\frac{5}{4}$$

$$\cos \theta = \frac{3}{5}$$

$$\sec \theta = \frac{5}{3}$$

$$\tan \theta = -\frac{4}{3}$$

$$\cot \theta = -\frac{3}{4}$$