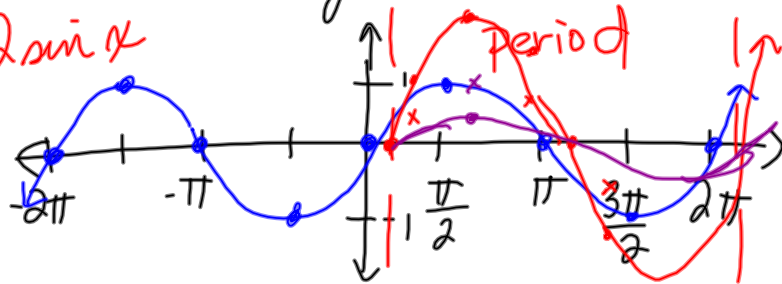


# Sec. 10.1 Graph Sine, Cosine, and Tangent Functions

$$y = \frac{1}{2} \sin x$$

$$y = 2 \sin x$$

$$y = \sin x$$



$$D: (-\infty, \infty)$$

$$R: [-1, 1]$$

oscillating - up/down

period - repeats

$$* y = a f(x)$$

$$* \text{Amplitude: } |a|$$

$$y = a \sin x$$

$$y = a \cos x$$

$$* \text{Period: } = \frac{2\pi}{b}$$

$$y = \sin bx$$

$$y = \cos bx$$

$$\frac{1}{b} \cdot 2\pi$$

Ex: What is the amplitude and period

for  $y = 2 \sin \frac{1}{3}x$  ?

amplitude: 2

period:  $3 \cdot 2\pi = \underline{\underline{6\pi}}$

$$\frac{2\pi}{b} = \frac{2\pi}{\frac{1}{3}} = 2\pi \cdot \frac{3}{1} = \underline{\underline{6\pi}}$$

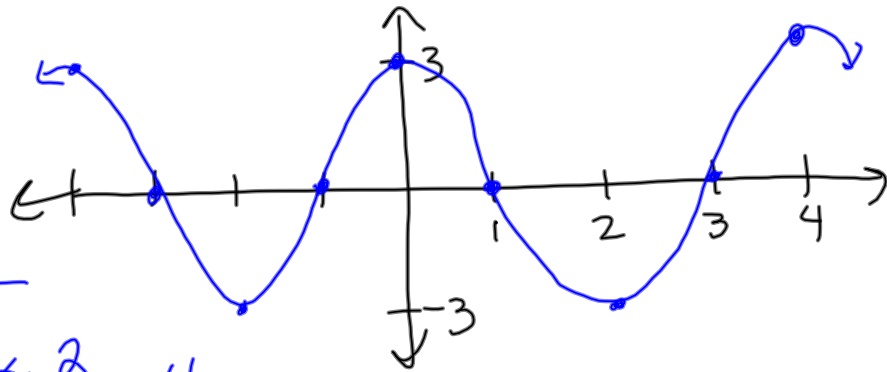
Graph  $y = 3 \cos \frac{\pi}{2} x$

amp: 3

period:  
H.C.

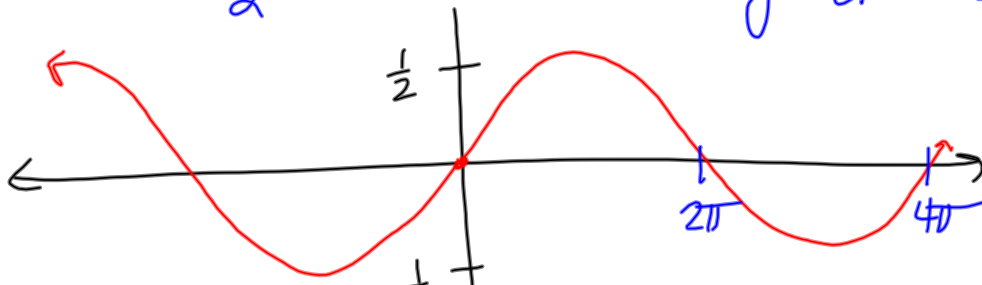
$$\frac{2\pi}{\pi} \cdot 2\pi$$

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



What is the amp and period?  
amp:  $\frac{1}{2}$       period:  $4\pi$

$$y = \frac{1}{2} \sin \frac{1}{2} x$$



Period

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

$$\frac{2\pi}{\frac{1}{2}} \Rightarrow 4\pi$$