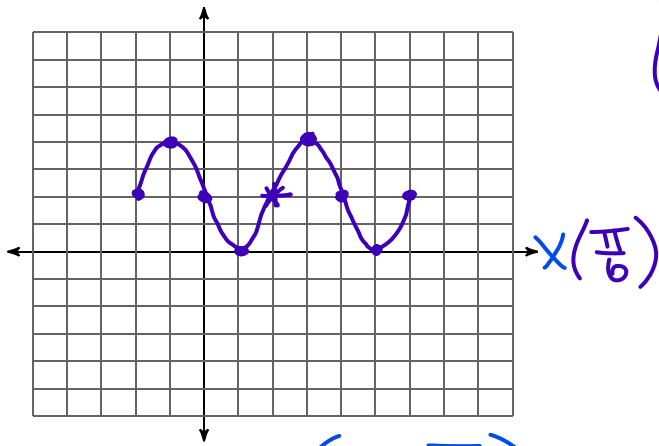


More Graphing Trig Functions Notes

List the period, midline, minimum and maximum of each trigonometric function. Sketch the graph.

1)  $y = 2\sin(3x - \pi) + 2$



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

Amplitude 2

Vertical shift (midline) 2

minimum 0

Maximum 4

Period  $\frac{2\pi}{3}$

Period =  $\frac{2\pi/3}{4} = \frac{\pi}{6}$

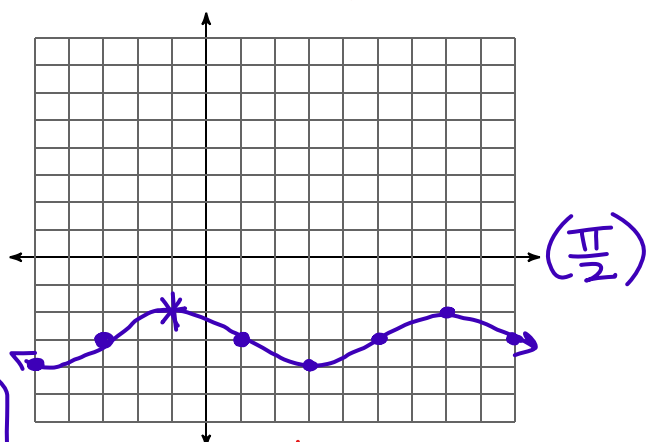
Count by  $\frac{\pi}{6}$

X-scale:  $\frac{\pi}{6}$

Horiz shift  $\frac{\pi}{3}$  right

2)  $y = \cos\left(\frac{1}{2}x + \frac{\pi}{4}\right) - 3$

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



Amp 1

midline -3

minimum -4

maximum -2

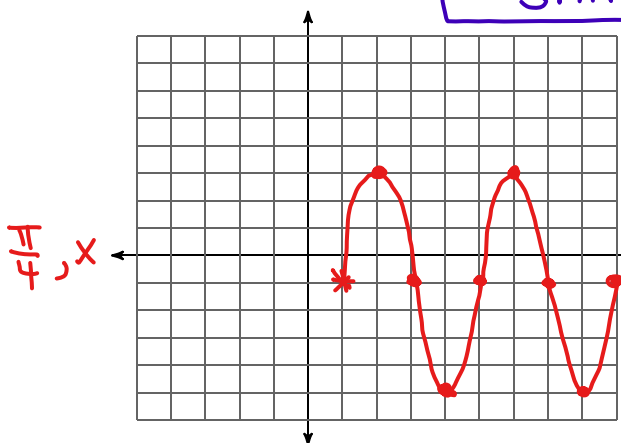
Period  $\frac{2\pi}{1/2} = 4\pi$

Count by  $\frac{Period}{4} = \frac{4\pi}{4} = \pi$

Horizontal shift

$\frac{\pi}{2}$  Left

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



$y = 4\sin 2\left(x - \frac{\pi}{4}\right) - 1$

Amp 4

mid -1

Horizontal shift  $\frac{\pi}{4}$  right

max: 3

min: -5

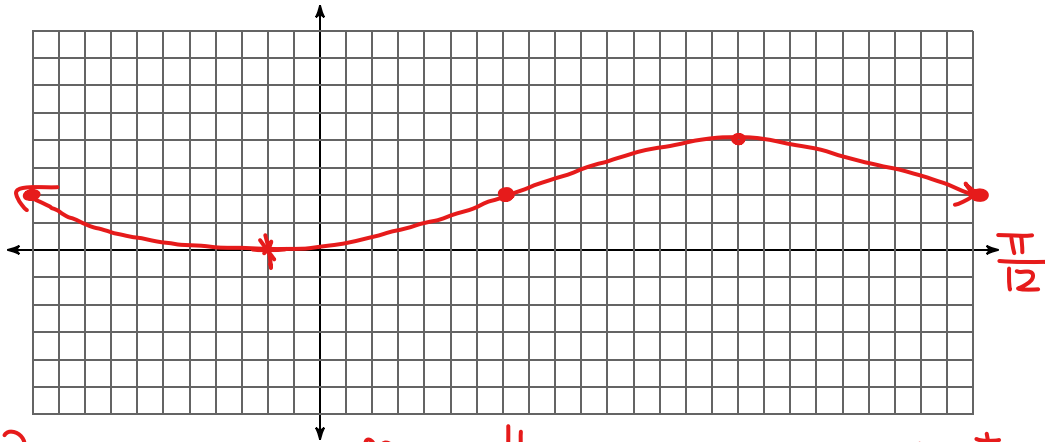
$P = \frac{2\pi}{2} = \pi$

count by  $\frac{\pi}{4}$

4)  $y = -2\cos\left(\frac{2}{3}x + \frac{\pi}{9}\right) + 2$

$y = -2\cos\frac{2}{3}\left(x + \frac{\pi}{6}\right) + 2$

$\frac{\pi}{6} \rightarrow \frac{2\pi}{12}$



Amp 2

mid: 2

Hor. Shift  $\cdot \frac{\pi}{6}$  Left

max 4

min 0

Period  $\cdot \frac{2\pi}{2/3} = 3\pi$

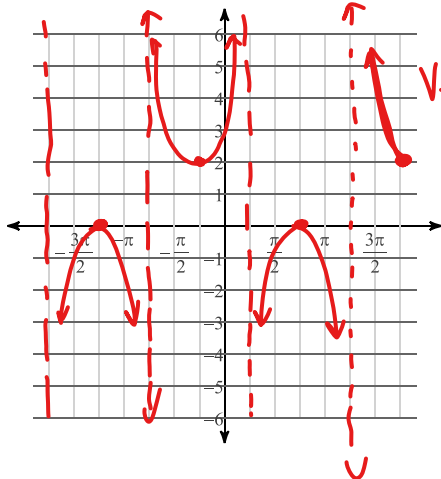
count by  $\frac{3\pi}{4}$   $\left(\frac{9\pi}{12}\right)$

Find the period in radians, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.

5)  $y = 1 + \csc\left(\theta - \frac{5\pi}{4}\right)$

Hor. shift Right  $\cdot \frac{5\pi}{4}$

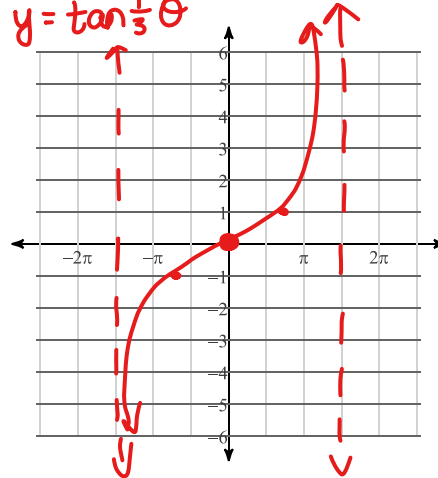
Vert Shift up 1



6)  $y = \tan\frac{\theta}{3}$

$P = \frac{\pi}{1/3} = 3\pi$

$y = \tan\frac{1}{3}\theta$



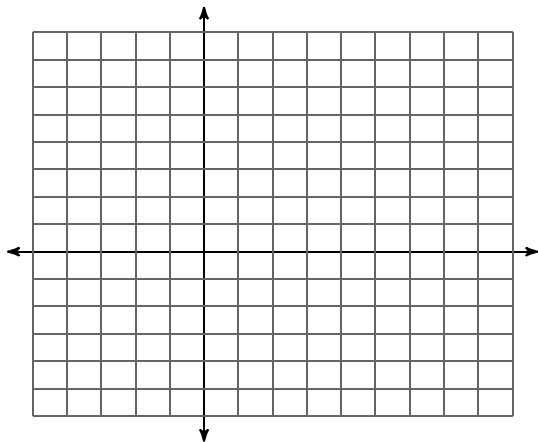
$\frac{3\pi}{4}$

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

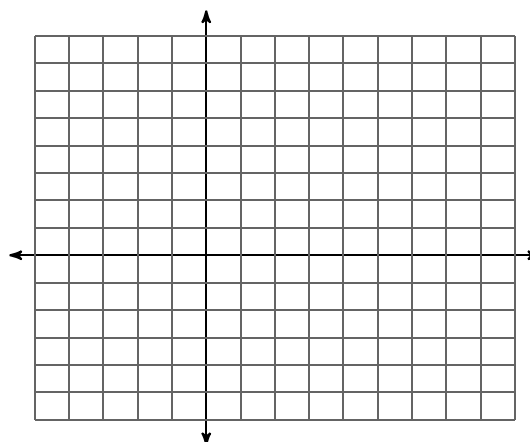
## More Graphing Trig Functions Notes

List the period, midline, minimum and maximum of each trigonometric function. Sketch the graph.

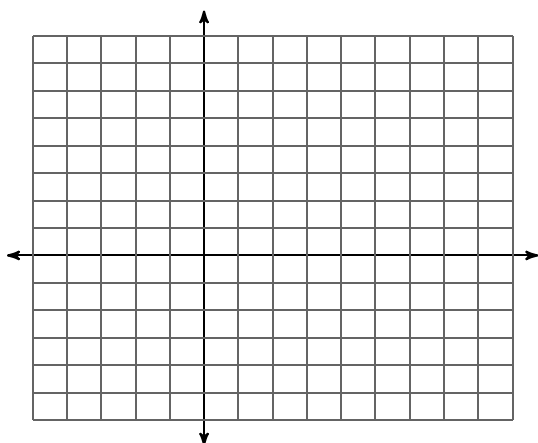
1)  $y = 2\sin(3x - \pi) + 2$



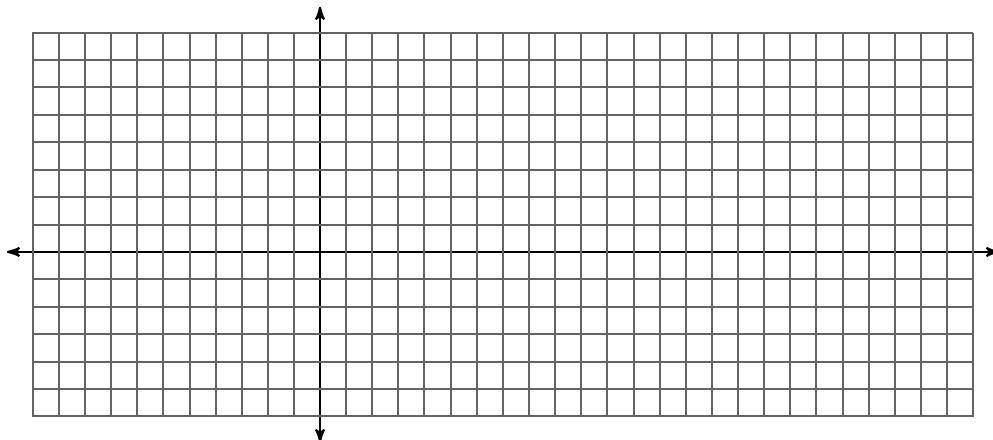
2)  $y = \cos\left(\frac{1}{2}x + \frac{\pi}{4}\right) - 3$



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

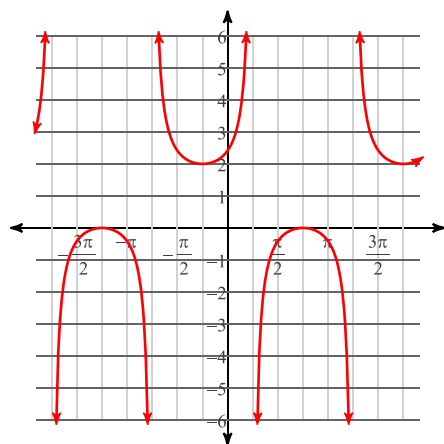


$$4) y = -2\cos\left(\frac{2}{3}x + \frac{\pi}{9}\right) + 2$$



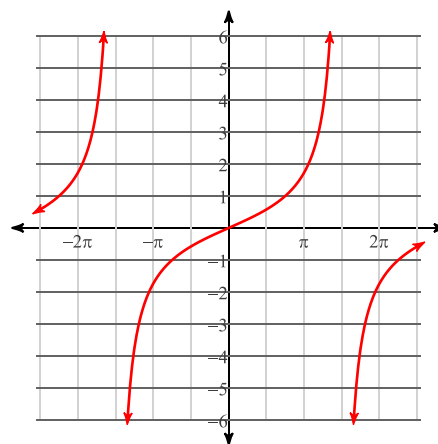
Find the period in radians, the minimum and maximum values, and two vertical asymptotes (if any). Then sketch the graph using radians.

$$5) y = 1 + \csc\left(\theta - \frac{5\pi}{4}\right)$$



Period:  $2\pi$   
 Min: None  
 Max: None  
 Vert asym:  $x = \frac{5\pi}{4}$   
 $x = \frac{9\pi}{4}$

$$6) y = \tan\frac{\theta}{3}$$



Period:  $3\pi$   
 Min: None  
 Max: None  
 Vert asym:  $x = \frac{3\pi}{2}$   
 $x = -\frac{3\pi}{2}$