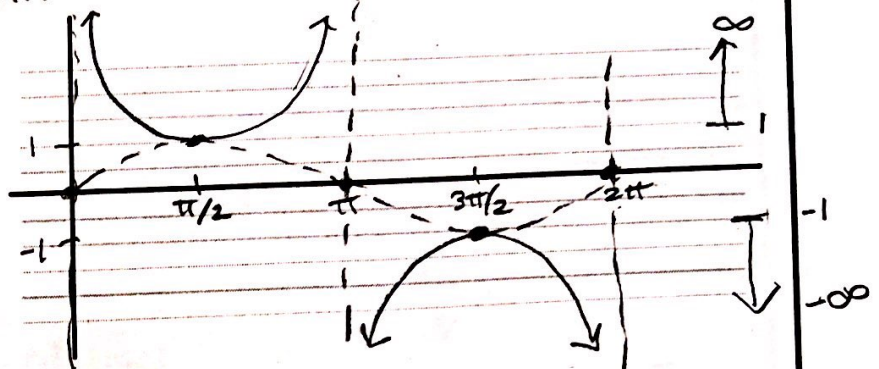


Investigating the Cosecant Function

x	$y_1 = \sin x$	$y_2 = \csc x = \frac{1}{\sin x}$
0	0	$\frac{1}{0} = \text{und.}$
$\pi/4$.7	$\frac{1}{.7} = 1.4$
$\pi/2$	1	1
$3\pi/4$.7	1.4
π	0	und.
$5\pi/4$	-.7	-1.4
$3\pi/2$	-1	-1
$7\pi/4$	-.7	-1.4
2π	0	und.

$D: (0, \pi) \cup (\pi, 2\pi)$
 $R: (-\infty, -1] \cup [1, \infty)$



- 1 - sketch sin
- 2 - Draw vertical Asymptotes
- 3 - sketch csc

Graphing Cosecant

Graph 1 period and state the domain and range of that period.

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

amp 1
vs -3

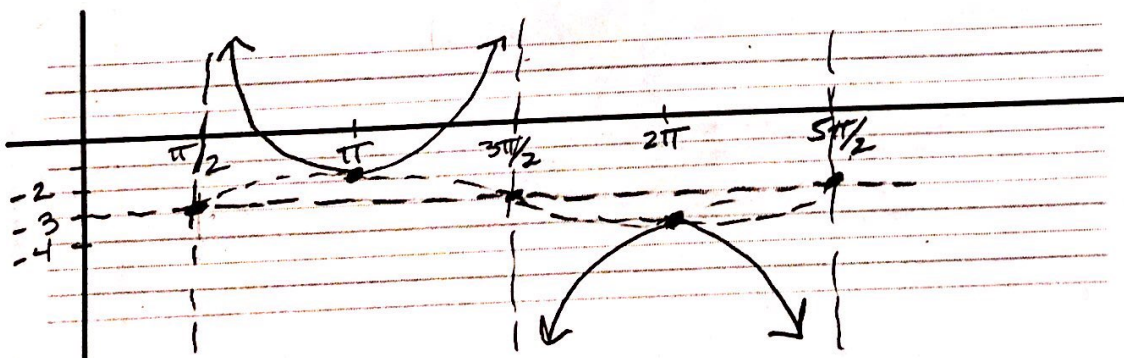
$$x - \frac{\pi}{2} = 0$$

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

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

$$x = \frac{4\pi}{2} + \frac{\pi}{2}$$

$$x = \frac{5\pi}{2}$$

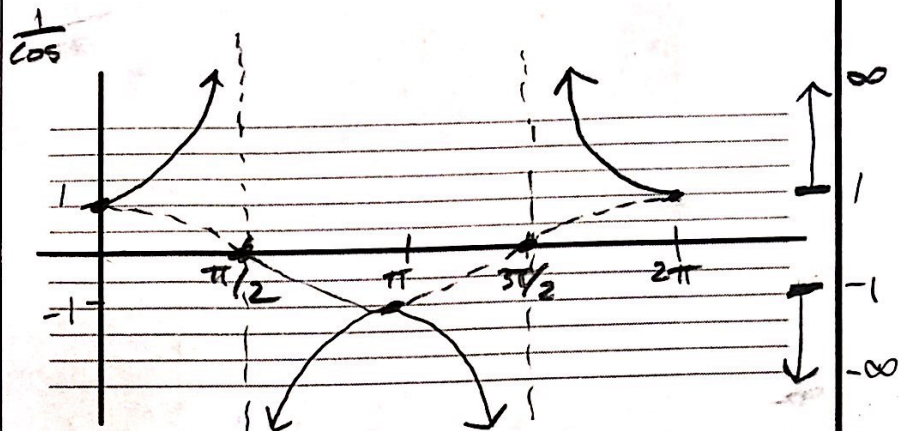


$$D: \left(\frac{\pi}{2}, \pi\right) \cup \left(\frac{3\pi}{2}, \frac{5\pi}{2}\right)$$

$$R: (-\infty, -4] \cup [-2, \infty)$$

Investigating the Secant Function

x	$y_1 = \cos x$	$y_2 = \sec x$
0	1	1
$\pi/4$.7	$\frac{1}{.7} = 1.4$
$\pi/2$	0	und
$3\pi/4$	-.7	-1.4
π	-1	-1
$5\pi/4$	-.7	-1.4
$3\pi/2$	0	und
$7\pi/4$.7	1.4
2π	1	1



$$D: [0, \frac{\pi}{2}) \cup (\frac{\pi}{2}, \frac{3\pi}{2}) \cup (\frac{3\pi}{2}, 2\pi]$$

$$R: (-\infty, -1] \cup [1, \infty)$$

Graphing Secant

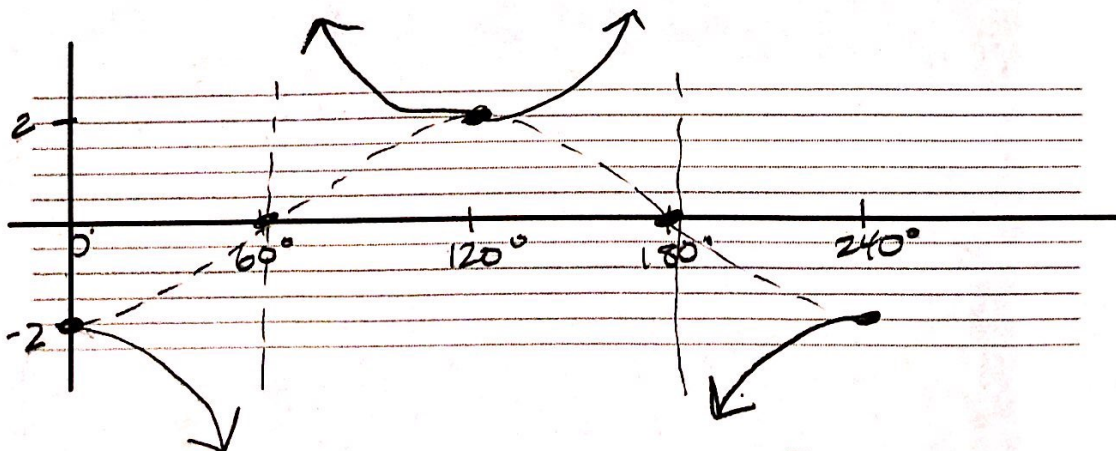
Graph 1 period and state the domain and range of that period.

$$y = -2 \sec \frac{3\theta}{2}$$

- reflect
- vs 0
- amp 2

$$\left(\frac{\pi}{3}\right) \frac{3\theta}{2} = 0 \Rightarrow \left(\frac{\pi}{3}\right) \frac{3\theta}{2} = 360^\circ \Rightarrow \left(\frac{\pi}{3}\right) \frac{3\theta}{2} = 360^\circ \left(\frac{\pi}{3}\right)$$

$$\theta = 0^\circ \quad \theta = 240^\circ$$



$$D: [0, 60^\circ) \cup (60^\circ, 180^\circ) \cup (180^\circ, 240^\circ]$$

$$R: (-\infty, -2] \cup [2, \infty)$$