

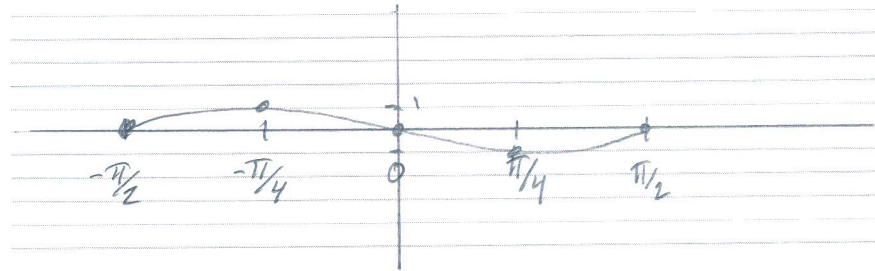
Trig Graphing WS
Sine, Cosine, Cosecant, Secant

Name Frustan

State the amplitude, period, phase shift and vertical shift of each of the following functions. Then graph one complete period of each function, labeling the horizontal axis and vertical axis. Also state the domain and range of one period using interval notation. ** Remember: $\theta \rightarrow \text{degrees}$ and $x \rightarrow \text{radians}$. **

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

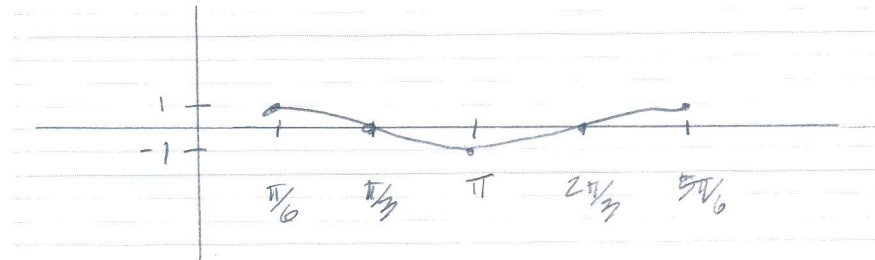
$$\begin{aligned} 2x + \pi &= 0 & 2x + \pi &= 2\pi \\ x &= -\frac{\pi}{2} & x &= \frac{\pi}{2} \end{aligned}$$



amp = 1
 pd = π
 ps = $-\pi/2$
 vs = 0
 D: $[-\pi/2, \pi/2]$
 R: $[-1, 1]$

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

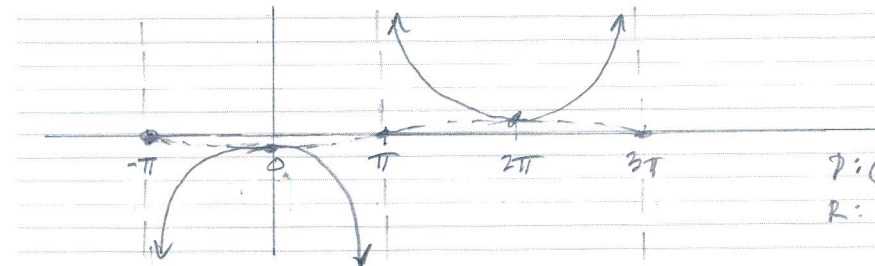
$$\begin{aligned} 3x - \frac{\pi}{2} &= 0 & 3x - \frac{\pi}{2} &= 2\pi \\ x &= \frac{\pi}{6} & x &= \frac{5\pi}{6} \end{aligned}$$



amp = 1
 pd = $2\pi/3$
 ps = $\pi/6$
 vs = 0
 D: $[\pi/6, 5\pi/6]$
 R: $[-1, 1]$

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

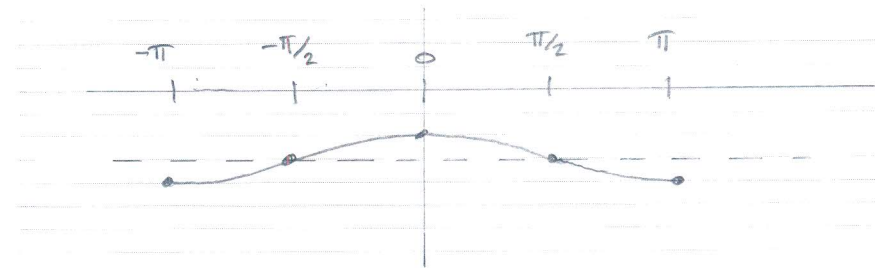
$$\begin{aligned} \frac{1}{2}x + \frac{\pi}{2} &= 0 & \frac{1}{2}x + \frac{\pi}{2} &= 2\pi \\ x &= -\pi & x &= 3\pi \end{aligned}$$



amp = $1/2$
 pd = 4π
 ps = $-\pi$
 D: $(-\pi, \pi) \cup (\pi, 3\pi)$
 R: $(-\infty, -1/2] \cup [1/2, \infty)$

4) $y = -\cos(-x - \pi) - 3$
 $y = -\cos(x + \pi) - 3$

$$\begin{aligned} x + \pi &= 0 & x + \pi &= 2\pi \\ x &= -\pi & x &= \pi \end{aligned}$$

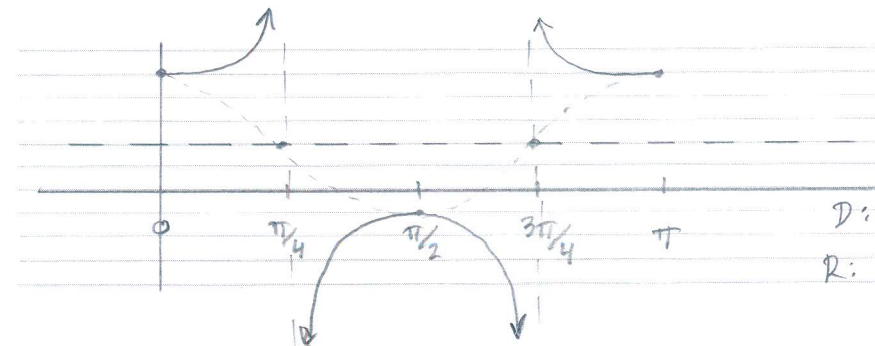


amp = 1
 pd = 2π
 ps = $-\pi$
 vs = -3
 D: $[-\pi, \pi]$
 R: $[-4, -2]$

5) $y = 3 \sec(-2x) + 2$

$$y = 3 \sec(2x) + 2$$

$$\begin{aligned} 2x &= 0 & 2x &= 2\pi \\ x &= 0 & x &= \pi \end{aligned}$$

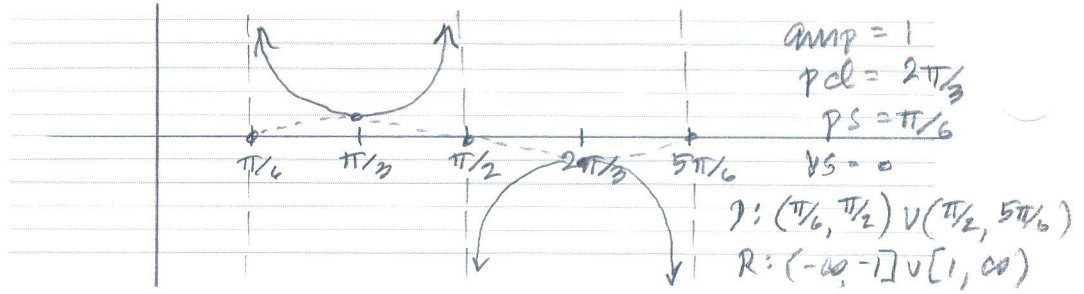


amp = 3
 pd = π
 ps = 0
 vs = 2
 D: $(0, \pi/4) \cup (\pi/4, 3\pi/4) \cup (3\pi/4, \pi)$
 R: $(-\infty, -1] \cup [5, \infty)$

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

$$3x - \frac{\pi}{2} = 0 \quad 3x - \frac{\pi}{2} = 2\pi$$

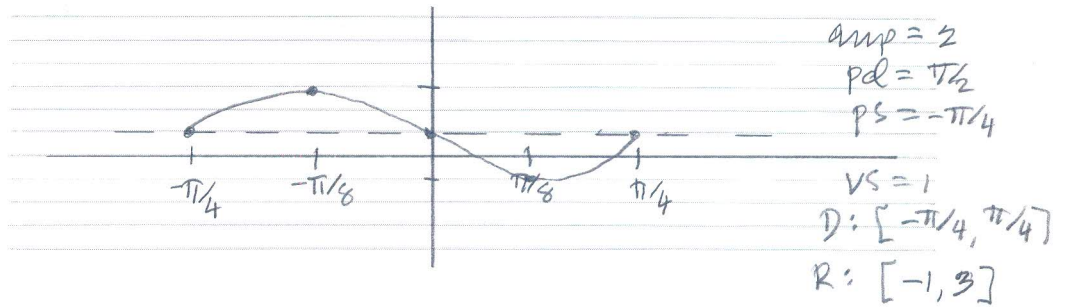
$$x = \frac{\pi}{6} \quad x = \frac{5\pi}{6}$$



$$7) y = 2\sin(4x + \pi) + 1$$

$$4x + \pi = 0 \quad 4x + \pi = 2\pi$$

$$x = -\frac{\pi}{4} \quad x = \frac{\pi}{4}$$



$$8) y = 3\csc x + 1$$

$$\text{amp} = 3$$

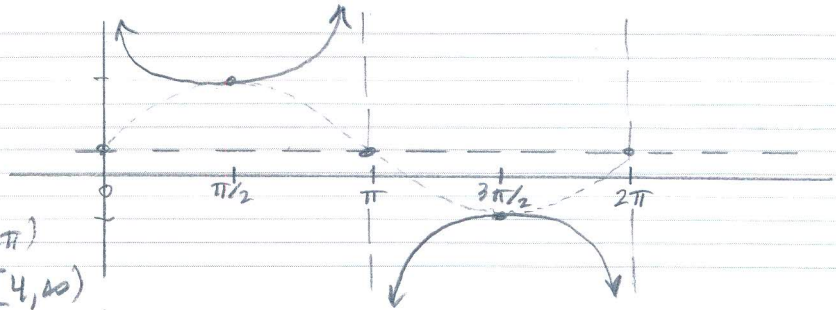
$$\text{pd} = 2\pi$$

$$\text{PS} = 0$$

$$\text{VS} = 1$$

$$D: (0, \pi) \cup (\pi, 2\pi)$$

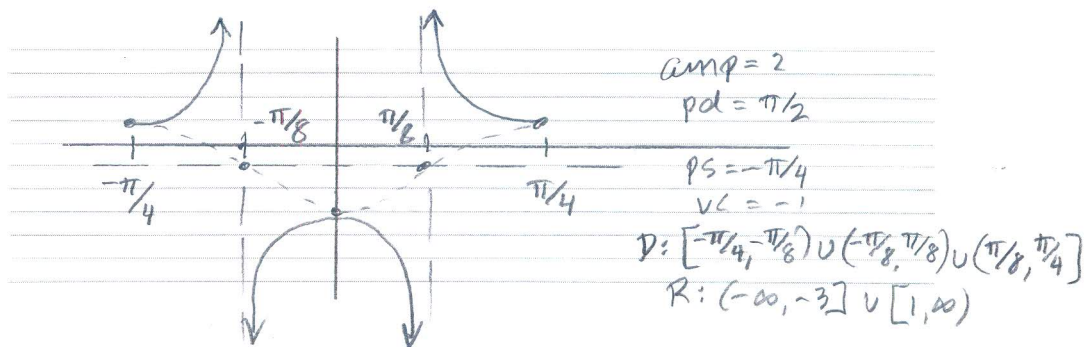
$$R: (-\infty, -2] \cup [4, \infty)$$



$$9) y = 2\sec(4x + \pi) - 1$$

$$4x + \pi = 0 \quad 4x + \pi = 2\pi$$

$$x = -\frac{\pi}{4} \quad x = \frac{\pi}{4}$$



$$10) y = \frac{1}{2}\sin(8x - 4\pi) + 1$$

$$8x - 4\pi = 0 \quad 8x - 4\pi = 2\pi$$

$$x = \frac{\pi}{2} \quad x = \frac{3\pi}{4}$$

