

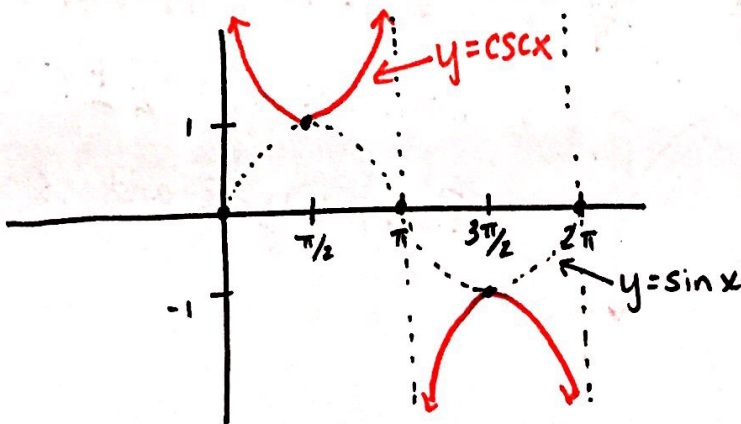
Cosecant and Secant Graphs

Steps to graphing csc and sec

- 1) Rewrite the given function as the reciprocal function.
- 2) Plot the sine or cosine function as before however ~~plot 2 periods and~~ draw the curve with a dashed line.
- 3) Draw vertical asymptotes as dashed lines where the sine or cosine graph crosses its midline
- 4) Plot csc or sec as solid lines using the co-function's min's, max's and, vertical asymptotes as guides.

*** Remember csc and sec do not have amplitude

Graph: $y = \csc x$ ($y = \frac{1}{\sin x}$)



Amp: n/a

per: 2π

PS: 0

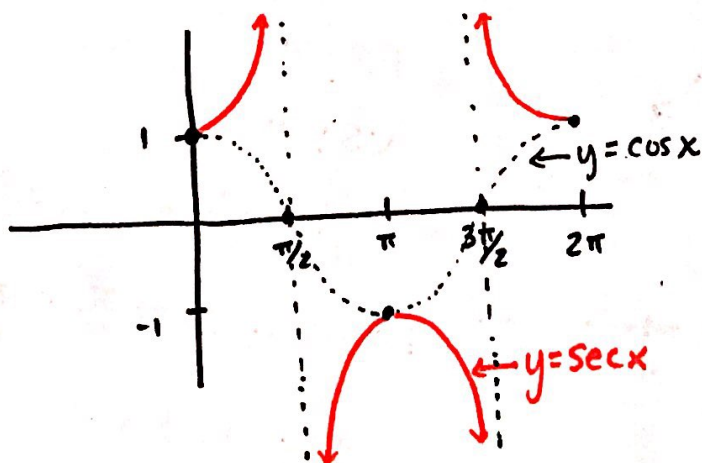
VS: 0

Asy: $x = 0, x = \pi, x = 2\pi$

Domain: $x \neq 0 \pm \pi n$

Range: $y \geq 1$ and $y \leq -1$

Graph: $y = \sec x$ ($y = \frac{1}{\cos x}$)



Amp: n/a

per: 2π

PS: 0

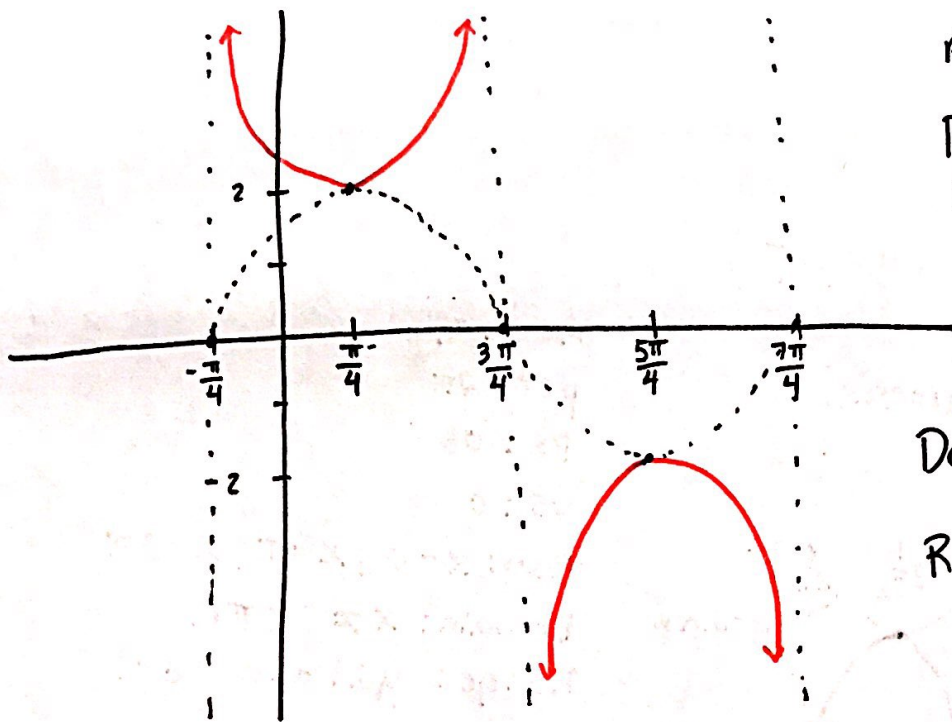
VS: 0

Asy: $x = \frac{\pi}{2}, x = \frac{3\pi}{2}$

Domain: $x \neq \frac{\pi}{2} \pm \pi n$

Range: $y \geq 1$ and $y \leq -1$

Sketch the graph of $y = 2 \csc\left(x + \frac{\pi}{4}\right)$



Amp: n/a

per: 2π

PS: $-\frac{\pi}{4}$

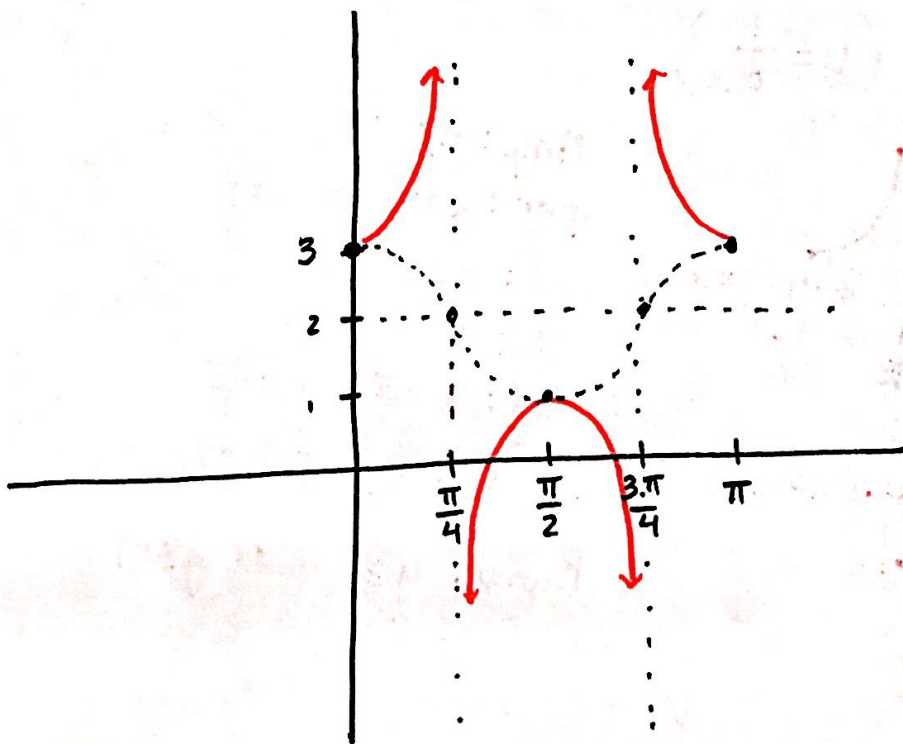
VS: 0

asy: $x = -\frac{\pi}{4}, x = \frac{3\pi}{4}, x = \frac{7\pi}{4}$

Domain: $x \neq -\frac{\pi}{4} + \pi n$

Range: $y \geq 2$ and $y \leq -2$

Sketch the graph of $y = \sec(2x) + 2$



Amp: n/a

per: $\frac{2\pi}{2} = \pi$

PS: 0

VS: 2

asy: $x = \frac{\pi}{4}$ and $x = \frac{3\pi}{4}$

Domain: $x \neq \frac{\pi}{4} + \frac{\pi}{2} n$

Range: $y \geq 3$ and $y \leq 1$