

Assignment 8B.2: Cosecant and Secant Graphs

Describe how the graph the following curves differs from $y = \csc x$ and $y = \sec x$ and state the values of the asymptotes.

1. $y = 5 \csc(x)$

Vertical Stretch = 5; Asymptotes = $0 + \pi k$

2. $y = -\sec\left(\frac{x}{4}\right) + 3$

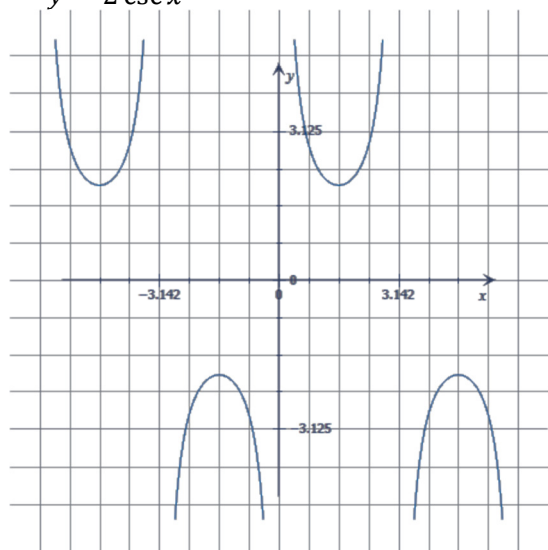
Vertical flip, period = 8π , translated up 3; Asymptotes = $2\pi + 4\pi k$

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

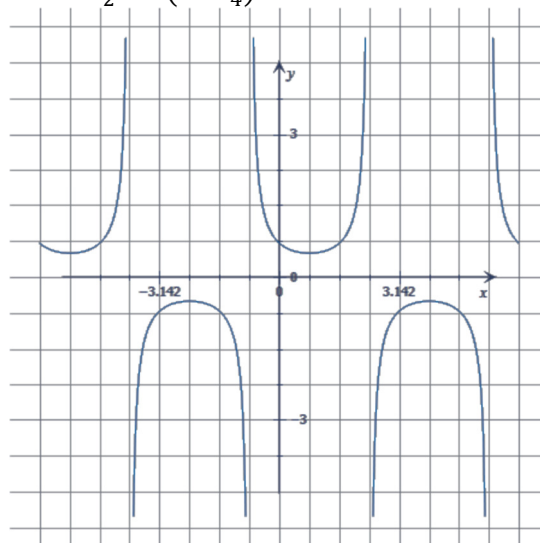
period = π , translated right $\frac{\pi}{4}$ and up 2; Asymptotes = $\frac{\pi}{4} + \pi k$

Graph the following functions by first graphing their corresponding reciprocal function.

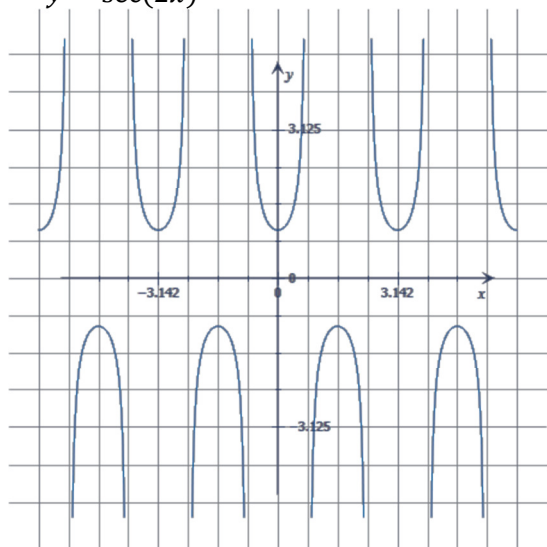
4. $y = 2 \csc x$



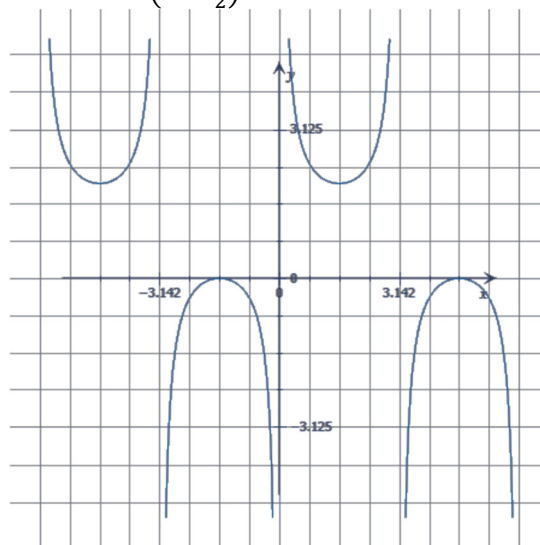
5. $y = \frac{1}{2} \csc\left(x + \frac{\pi}{4}\right)$



6. $y = \sec(2x)$



7. $y = \sec\left(x - \frac{\pi}{2}\right) + 1$



8. The “U” shapes in a secant or cosecant graph appear to be parabolas. Explain why the repeating shapes in the secant and cosecant graphs are *not* parabolas.

No, these are not parabolas because they are bounded horizontally by asymptotes. Parabolas have no horizontal bounds.