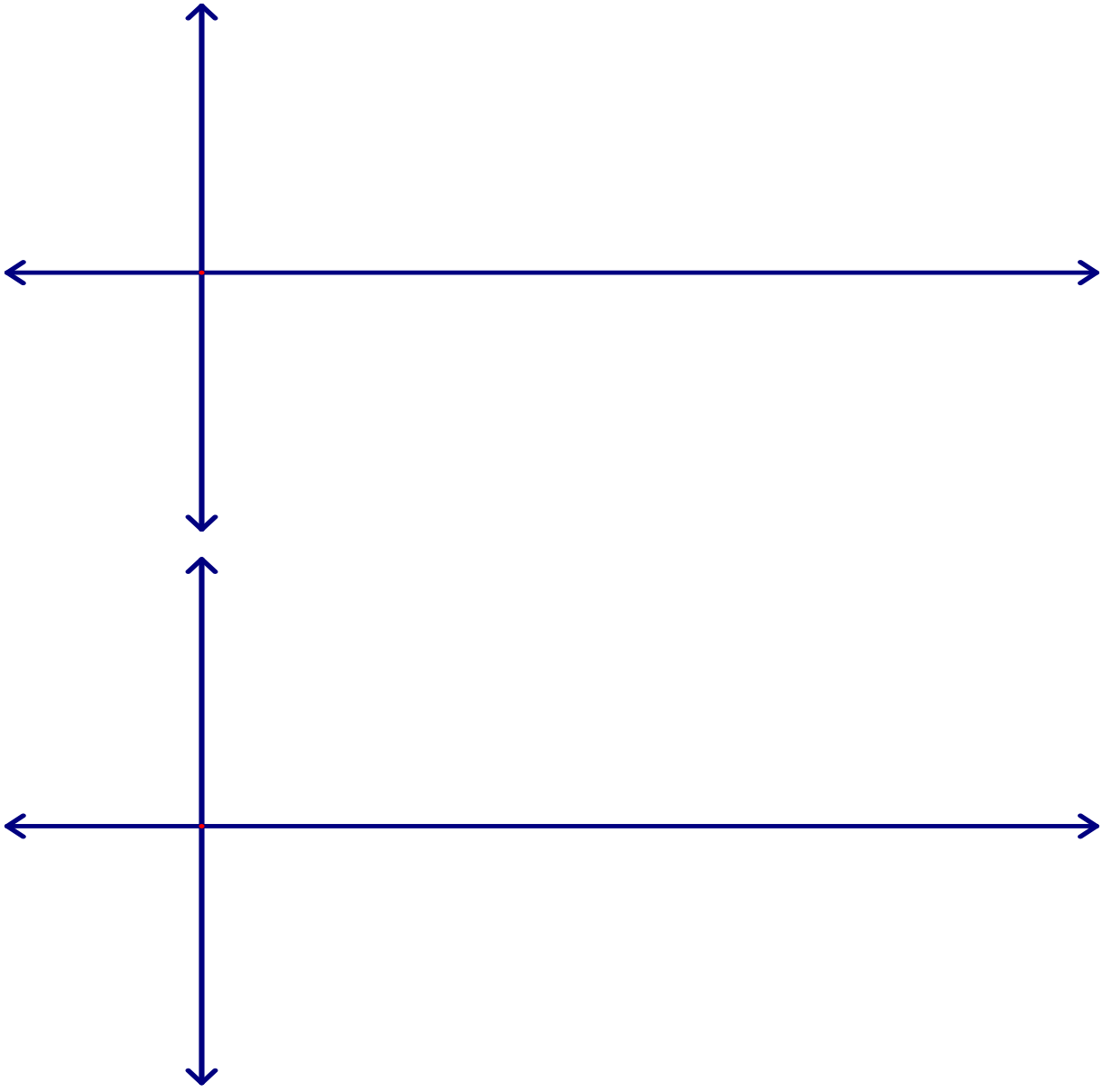
Section 4.6 (Day 1) – Graphs of Secant & Cosecant Functions

Where do they come from?? Let's look back at that chart from 4.4:

θ	sinθ	cosθ	cscθ	secθ
0°				
90°				
180°				
270°				

Now let's graph these key points on a coordinate plane:



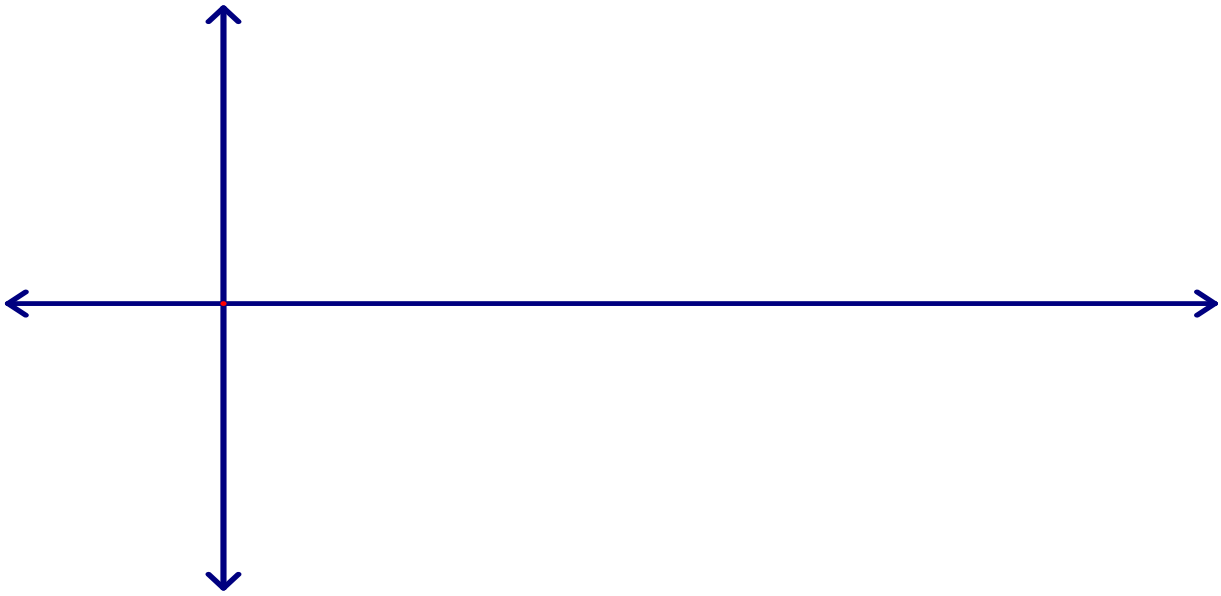
Section 4.6 (Day 1) – Graphs of Secant & Cosecant Functions

How to graph secant and cosecant

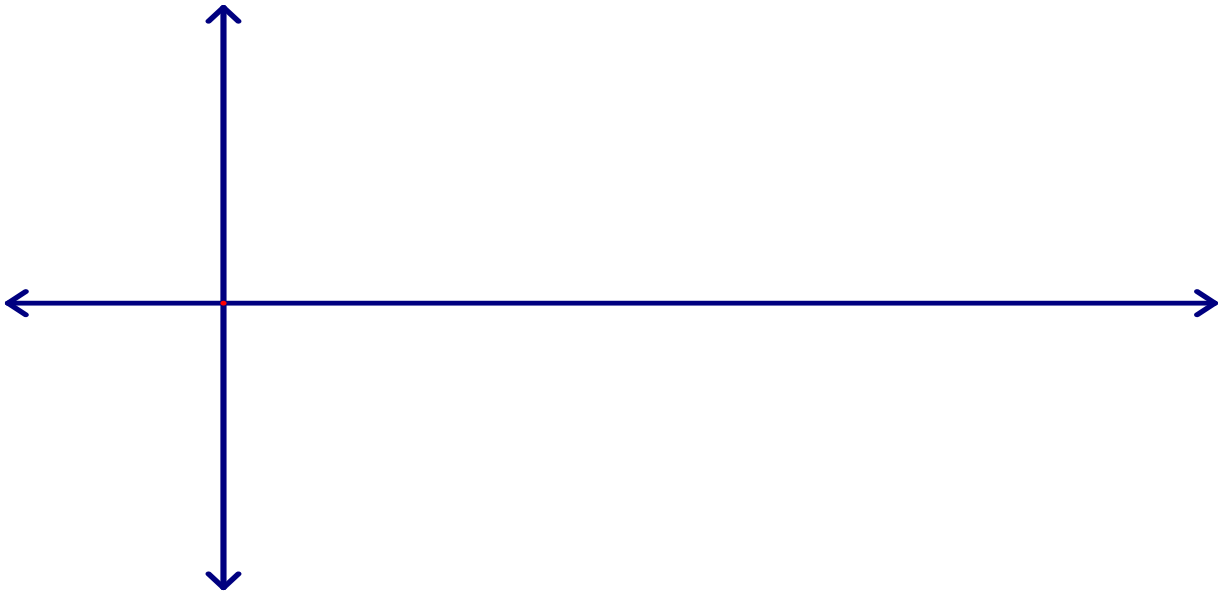
Secant is associated with cosine, and *cosecant* is associated with sine. They will have the same period, frequency and asymptote, so you can graph the sine or cosine graph FIRST, and then use it as a guide to help you graph secant or cosecant.

Examples:

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

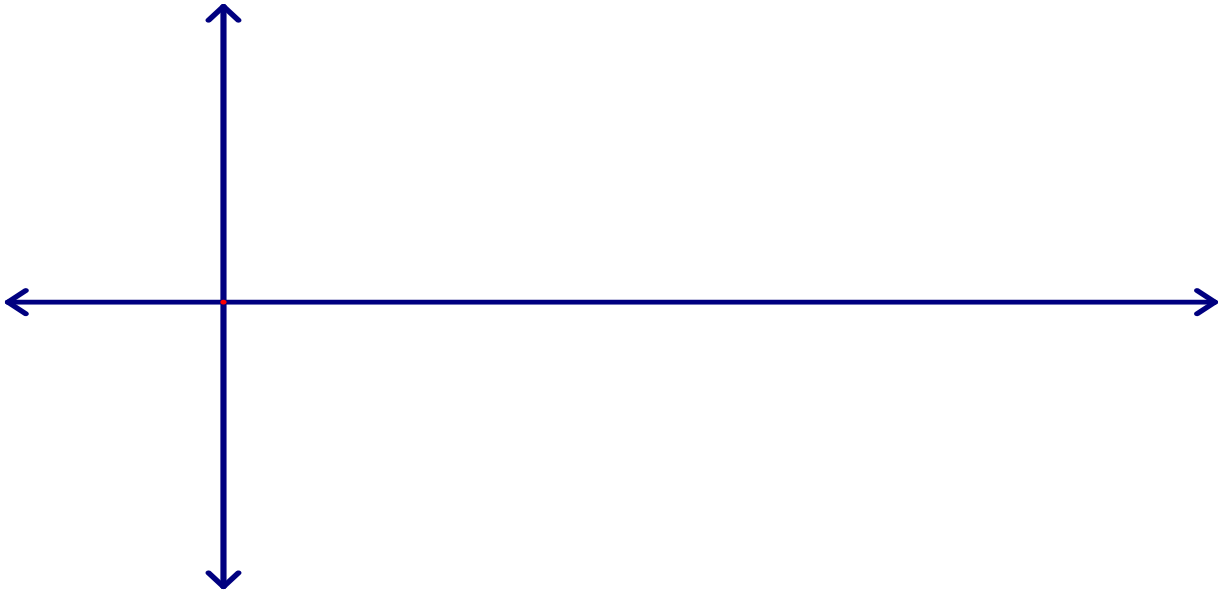


2) $y = -2\csc x + 4$

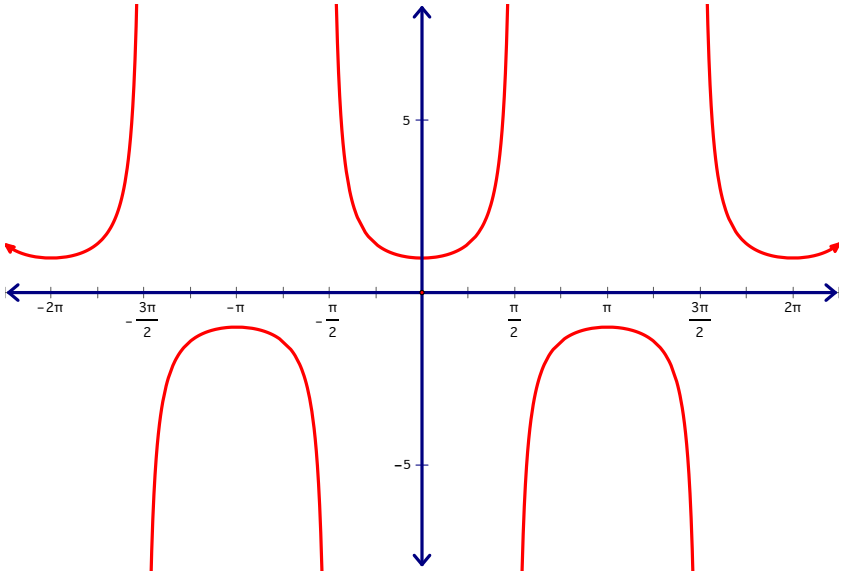


Section 4.6 (Day 1) – Graphs of Secant & Cosecant Functions

3) $y = 3\sec 2x - 1$



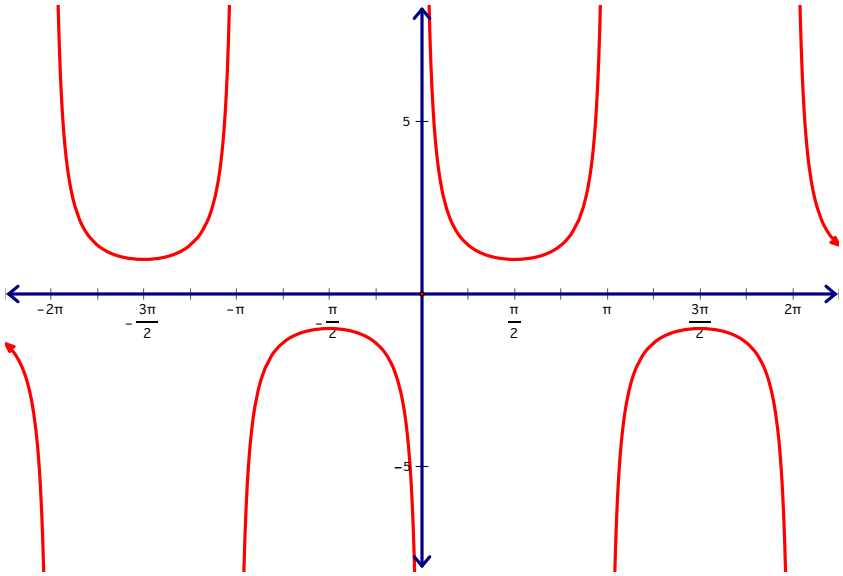
Secant Curve



- Domain: Range: Period:
- Symmetric with respect to the: *y-axis* so *even function*.
- Zeros:
- Local Max: Local Min:

Section 4.6 (Day 1) – Graphs of Secant & Cosecant Functions

Cosecant Curve



- Domain: Range: Period:

- Symmetric with respect to the: *origin* so *an odd function* ($\csc(-x) = -\csc x$).

- Zeros:

- Local Max: Local Min: