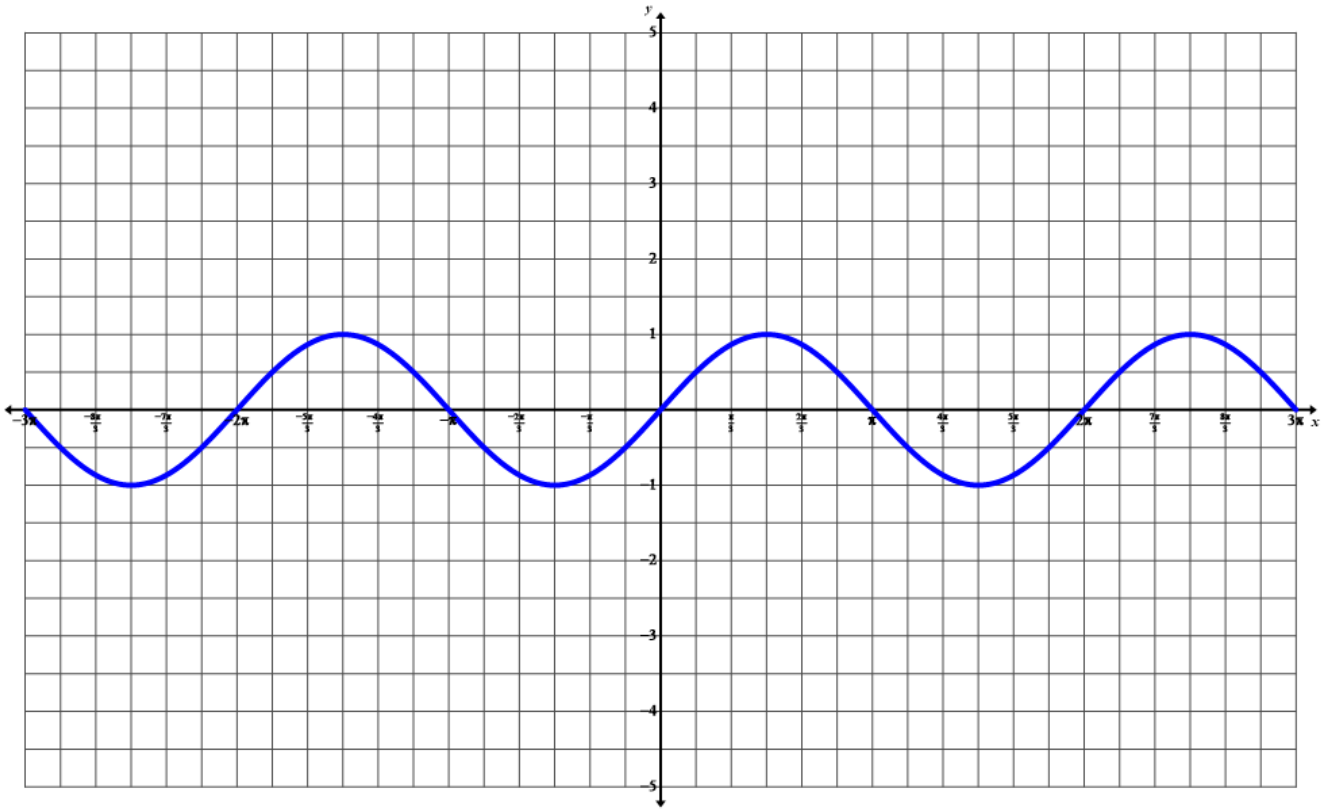
6.5 Exploring Graphs of the Reciprocal Trigonometric Functions

Math Learning Target:

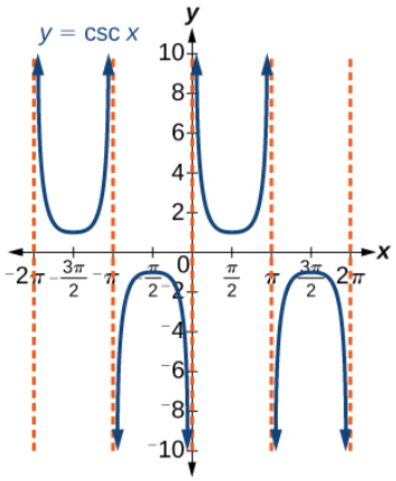
"I can graph the reciprocal trigonometric functions.
I can identify, describe, and graph all transformations of the reciprocal trigonometric functions. I can create formulas that determine the locations of key properties of these functions."

Ex.1: Given $f(x) = \sin x$. (on the interval $-3\pi \leq x \leq 3\pi$)
Using the properties of reciprocal functions from section 5.1 as a guide, graph $f(x) = \csc x$.



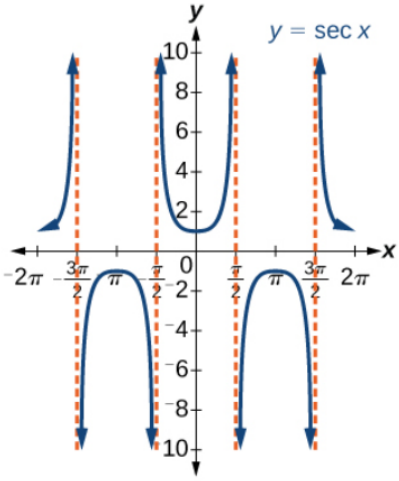
Summary

Cosecant



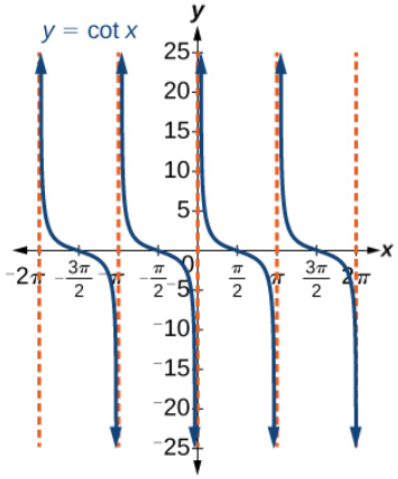
Domain: $x \neq \pi k$,
where k is an integer
Range: $(-\infty, -1] \cup [1, \infty)$

Secant



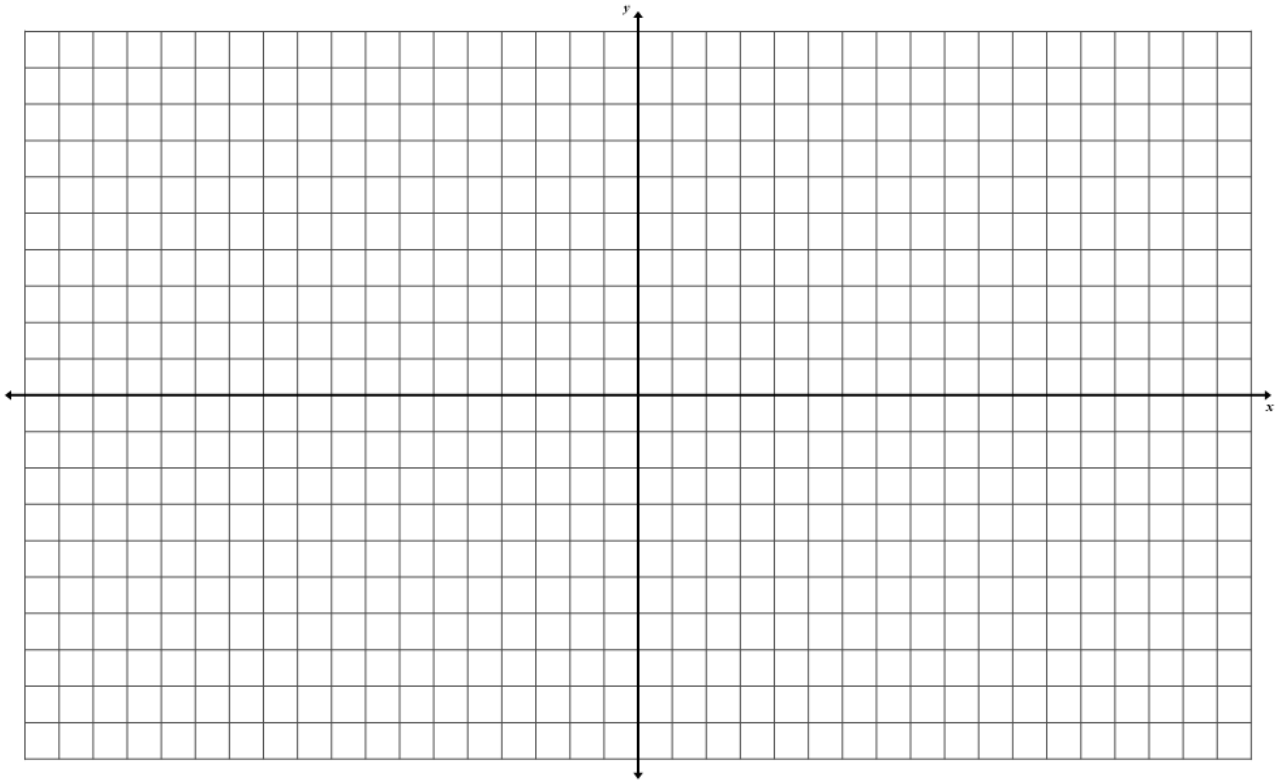
Domain: $x \neq \frac{\pi}{2} k$,
where k is an odd integer
Range: $(-\infty, -1] \cup [1, \infty)$

Cotangent



Domain: $x \neq \pi k$,
where k is an integer
Range: $(-\infty, \infty)$

Ex.2: Graph $f(x) = \cot\left(-\frac{1}{2}x - \frac{\pi}{8}\right)$



Entertainment: **READ** p.352

GRAPH (do not sketch): p.353 #1, 2, 3, 7*; *for #7 graph on the interval $-2\pi \leq x \leq 2\pi$