

October 11

How is the graph of cosine related
to the graph of secant?

How is the graph of sine related to
the graph of cosecant?

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Students will verbally explain how to
graph all six trig functions

(using the words:
zero, asymptote, undefined...)



$$y = A \csc(Bx + C) + D \quad y = A \sec(Bx + C) + D$$

A = amplitude

→ change range

$$y \leq -1(A), y \geq 1(A)$$

D = Vertical Shift

→ change range

$$y \leq -A + D, y \geq A + D$$

B = period change

$$\text{Period} = \frac{2\pi}{B}$$

↑ length of one cycle

C = Horizontal Shift

$$HS = -\frac{C}{B}$$

add to start, end,
middle, 1st Q, 3rd Q

Label the axes for the function below.
(Draw in a new x- or y-axis if necessary.)

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

Amplitude = 2

Vertical Shift = +3

New Range: $y \leq 1, y \geq 5$

$$y \leq \underline{2+3}, \underline{2+3} \leq y$$

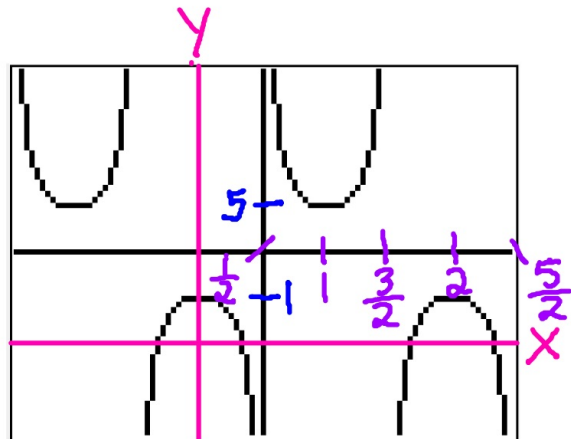
Period = 2

Horizontal Shift = $\frac{1}{2}$

$$\text{Period} = \frac{2\pi}{\pi} = 2$$

$$0, \frac{1}{2}, 1, \frac{3}{2}, 2$$

add $\frac{1}{2}$
to each #



$$HS = -\left(\frac{-\frac{\pi}{2}}{\pi}\right) = \frac{\pi}{2} \cdot \frac{1}{\pi} = \frac{\pi}{2\pi} = \frac{1}{2}$$

$$\frac{1}{2}, 1, \frac{3}{2}, 2, \frac{5}{2}$$