

$$(x+5)^2 = (x+5)(x+5)$$

$$x^2 + 5x + 5x + 25$$

$$x^2 + 10x + 25$$

$$x^2 + 5x + 4 \rightarrow x^2 + 4x + 1x + 4$$

$$\underline{1} \times \underline{4} = 4 \quad x(x+4) + 1(x+4)$$

$$\underline{1} + \underline{4} = 5 \quad (x+4)(x+1)$$

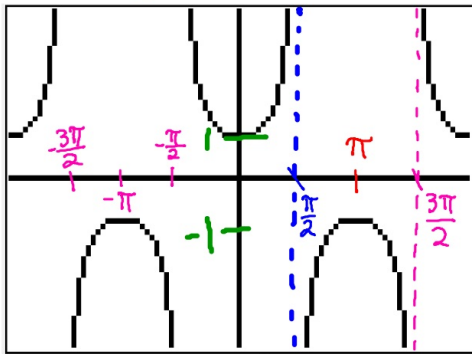
October 15

SWBAT:

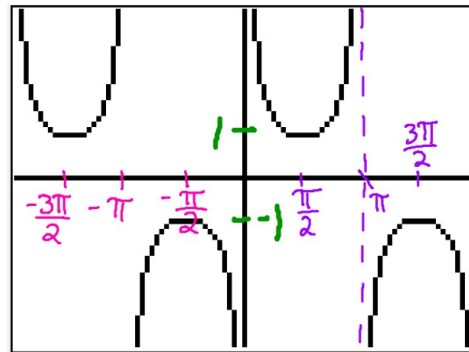
Sketch graphs of
transformations of
secant and
cosecant



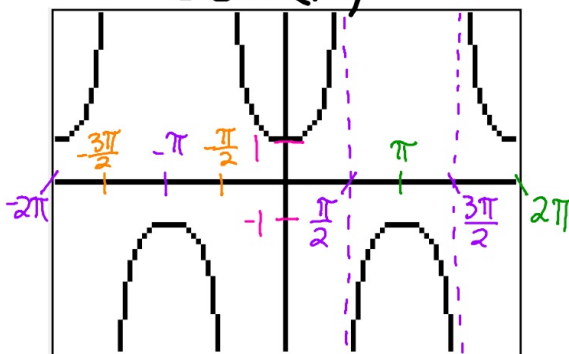
$\sec(x)$



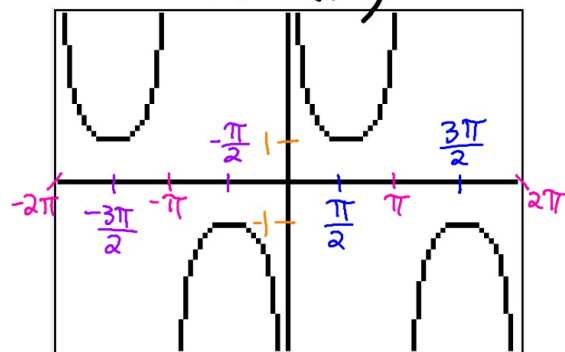
$\csc(x)$



$\sec(x)$



$\csc(x)$



1) $y = 4\sec(2x)$

Amplitude = 4

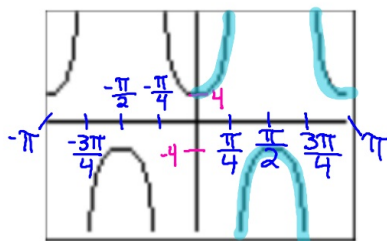
Vertical Shift = 0

New Range:

$y \leq -4$ ~~$y \leq -4$~~ $y \geq 4$

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

Horizontal Shift = 0



1) $y = 4\sec(2x)$

Amplitude = 4

Vertical Shift = none

New Range:

$y \leq -4$ ~~$y \leq -4$~~ $y \geq 4$

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

Horizontal Shift = none
 $= \frac{-c}{b} = \frac{0}{2} = 0$



2) $y = 3\sec(\pi x)$

Amplitude =

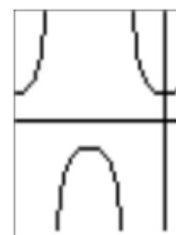
Vertical Shift

New Range:

$\leq y$

Period =

Horizontal Shift



5) $y = \csc(x) - 2$

Amplitude = 1

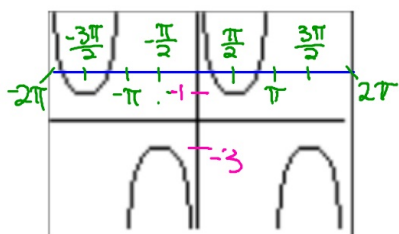
Vertical Shift = -2

New Range:

$y \leq -1-2 = -3$ ~~and~~ $y \geq 1-2 = -1$

Period = $\frac{2\pi}{1} = 2\pi$

Horizontal Shift = 0



6) $y = \csc(x) + 4$

Amplitude = 1

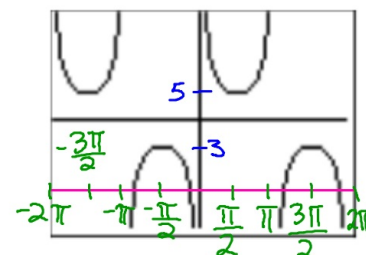
Vertical Shift = 4

New Range:

$y \leq -1+4 = 3$ ~~and~~ $y \geq 1+4 = 5$

Period = 2π

Horizontal Shift = none



7) $y = \csc\left(x - \frac{\pi}{4}\right)$

Amplitude = 1

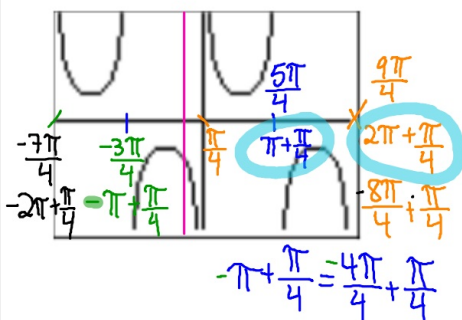
Vertical Shift = 0

New Range:

$y \leq -1$ ~~and~~ $y \geq 1$

Period = $\frac{2\pi}{1} = 2\pi$

Horizontal Shift = $-\frac{c}{b} = -\frac{-\pi/4}{1} = \frac{\pi}{4}$



$-\pi + \frac{\pi}{4} = -\frac{4\pi}{4} + \frac{\pi}{4} = -\frac{3\pi}{4}$

7) $y = \csc\left(x - \frac{\pi}{4}\right)$

Amplitude = 1

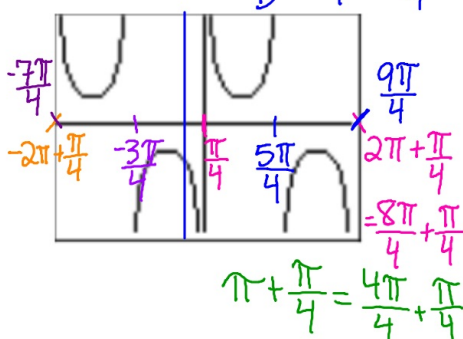
Vertical Shift = none

New Range:

$y \leq -1$ ~~and~~ $y \geq 1$

Period = $\frac{2\pi}{1} = 2\pi$

Horizontal Shift = $-\frac{c}{b} = -\frac{-\pi/4}{1} = \frac{\pi}{4}$



$\pi + \frac{\pi}{4} = \frac{4\pi}{4} + \frac{\pi}{4} = \frac{5\pi}{4}$

$-\pi + \frac{\pi}{4} = -\frac{4\pi}{4} + \frac{\pi}{4} = -\frac{3\pi}{4}$

8) $y = \sec\left(x + \frac{\pi}{2}\right)$

Amplitude = 1

Vertical Shift = 0

New Range:

$y \leq -1$ ~~and~~ $y \geq 1$

Period = 2π

Horizontal Shift = $-\frac{c}{b} = -\frac{\pi/2}{1} = -\frac{\pi}{2}$

