

Review: Evaluate the following trigonometric expressions.

$$\tan \frac{5\pi}{2} = \frac{1}{0} = \text{undefined}$$



$$\sec\left(\frac{3\pi}{2}\right) = \frac{1}{0} = \text{undefined}$$



$$\sin\left(-\frac{5\pi}{6}\right) = -\frac{1}{2}$$



$$\csc\left(\frac{4\pi}{3}\right) = -\frac{2}{\sqrt{3}}$$



$$\cos\left(-\frac{5\pi}{4}\right) = \frac{1}{\sqrt{2}}$$



$$\cot\left(-\frac{9\pi}{4}\right) = -1$$

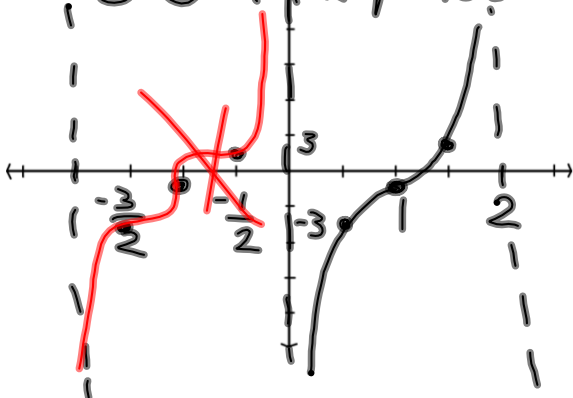


$$y = -3 \cot \frac{\pi}{2} x$$

"amp" = |-3| = 3

period: $\frac{\pi}{\pi/2} = \frac{\pi}{1} \cdot \frac{2}{\pi} = 2$

cot has vertical asymptotes @ 0 & the period



$$y = a f(bx)$$

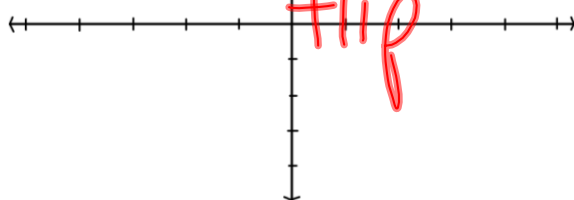
amplitude or

"amplitude" of referencepts

$$= |a|$$

period = $\frac{\pi \text{ or } 2\pi}{|b|}$

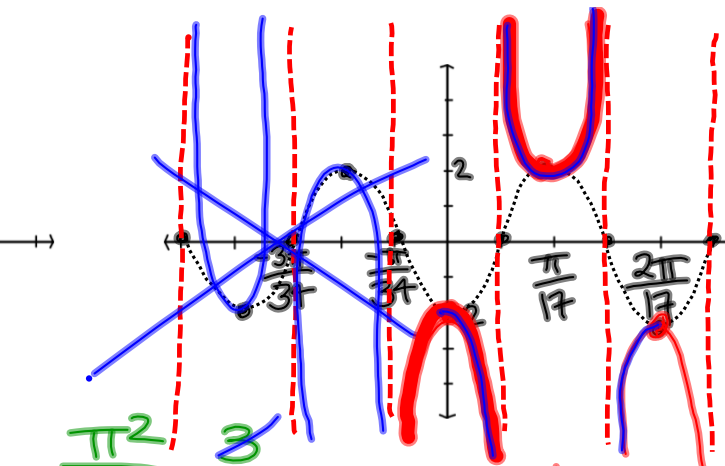
If $a < 0$, vertical flip



$$y = -2 \sec 17x$$

"amp" = 2

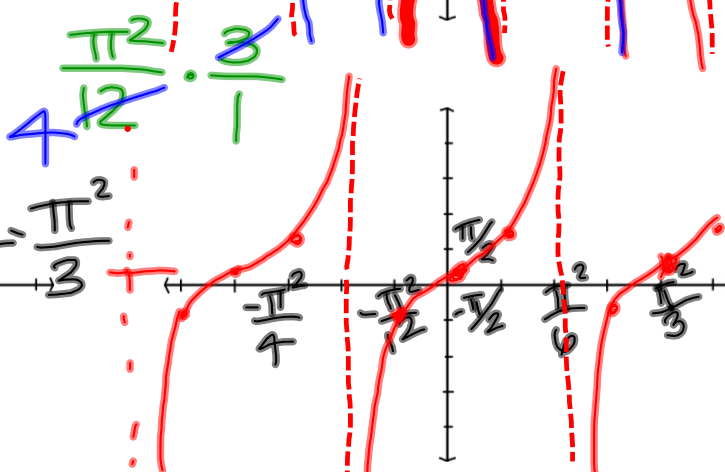
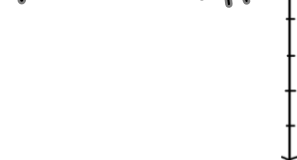
per = $\frac{2\pi}{17}$



$$y = \frac{\pi}{2} \tan\left(\frac{3}{\pi}x\right)$$

amp: $\frac{\pi}{2}$

per: $\frac{\pi}{3/\pi} = \frac{\pi}{1} \cdot \frac{\pi}{3} = \frac{\pi^2}{3}$

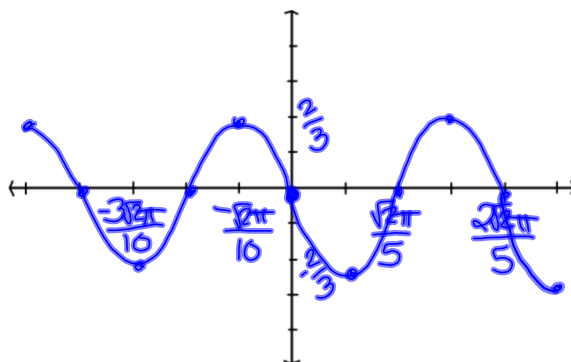


$$y = -\frac{2}{3} \sin\left(\frac{5}{\sqrt{2}}x\right)$$

amp: $\frac{2}{3}$



per: $\frac{2\pi}{5/\sqrt{2}} = \frac{2\pi}{1} \cdot \frac{\sqrt{2}}{5} = \frac{2\sqrt{2}\pi}{5}$

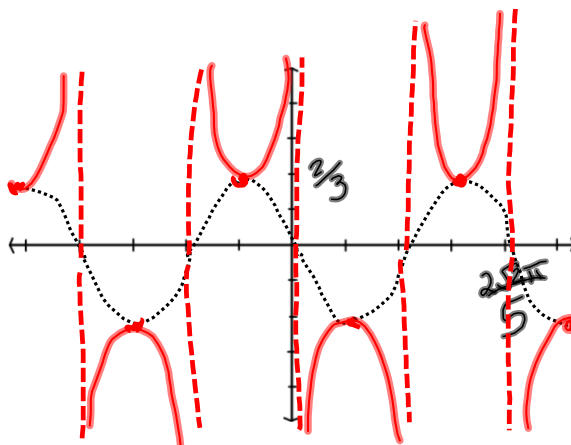


$$y = -\frac{2}{3} \csc\left(\frac{5}{\sqrt{2}}x\right)$$

amp: $\frac{2}{3}$



per = $\frac{2\sqrt{2}\pi}{5}$



$$y = af(bx) \checkmark$$

ultimate goal: $y = a [f(bx+c)] + d$

$$y = f(x+c) + d$$

outside - vertically as we would expect

inside - horizontally, opposite

$d =$ vertical shift
 $d > 0$ up
 $d < 0$ down



$c =$ horizontal shift

$c > 0$ left

$c < 0$ right



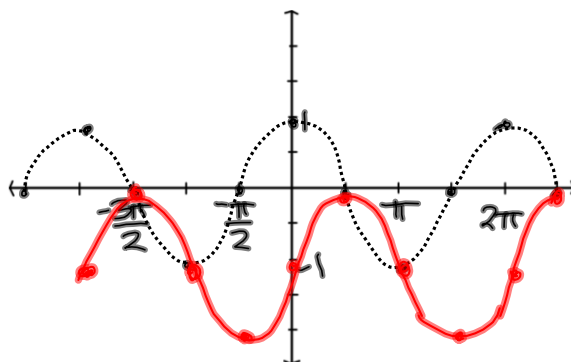
$$y = \cos(x - \frac{\pi}{2}) - 1$$

amp: 1

per: 2π

right $\frac{\pi}{2}$ (1 tick)

down 1 (2 ticks)



$$y = \cot(x + \frac{\pi}{2}) - \frac{1}{2}$$

amp 1

per π

left $\frac{\pi}{2}$

down $\frac{1}{2}$

