Read 5.5-5.7 and "Trig Guide to Graphing" on brewermath.com

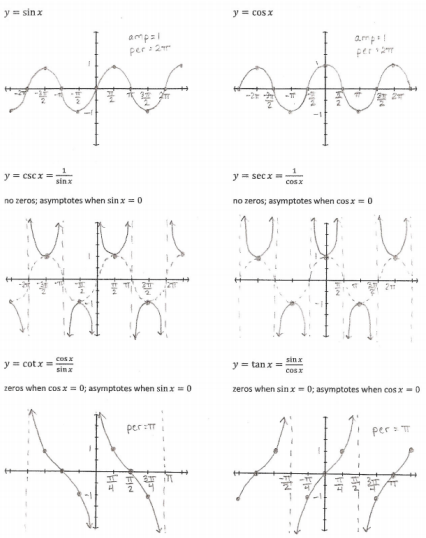
Due Wed. 12/7:

- 5.5: #55-60 all; 77-84 all
- 5.6 #1-47 odd; 49-54 all; 63-70 all

Due Wed. 12/14

- 5.7 #1-50 all; #53-64 all; 87-92 all

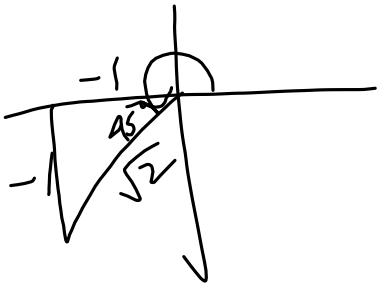
Test #2 - Wed. 12/14 - Graphing + Review



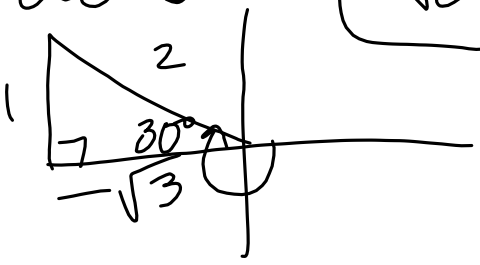
$\tan 180^\circ = \frac{\sin 180^\circ}{\cos 180^\circ} = \frac{0}{-1} = \boxed{0}$

$(-1, 0)$

$\sin \frac{5\pi}{4} = \boxed{\frac{-1}{\sqrt{2}}}$



$\sec \frac{7\pi}{6} = \boxed{-\frac{2}{\sqrt{3}}}$



Summary:

For a Trigonometric function of the form $y = af\left[b\left(x + \frac{c}{b}\right)\right] + d$,

Amplitude $= |a|$ (note that amplitude is always positive)

Period $= \dfrac{original\ period\ of\ the\ function\ (\pi\ or\ 2\pi)}{|b|}$

Horizontal shift $= \frac{c}{b}$, $\begin{matrix} left\ if\ \frac{c}{b}>0 \\ right\ if\ \frac{c}{b}<0 \end{matrix}$

phase shift $-\frac{c}{b}$

Vertical shift $= d$, $\begin{matrix} up\ if\ d>0 \\ down\ if\ d<0 \end{matrix}$

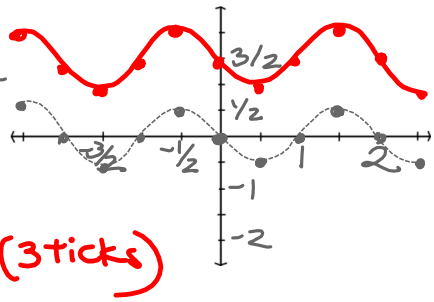
$y = -\frac{1}{2}\sin \pi x + \frac{3}{2}$

amplitude: $\frac{1}{2}$

period: $\frac{2\pi}{\pi} = 2$

horiz. shift: N/A

vert. shift: up $\frac{3}{2}$ (3 ticks)



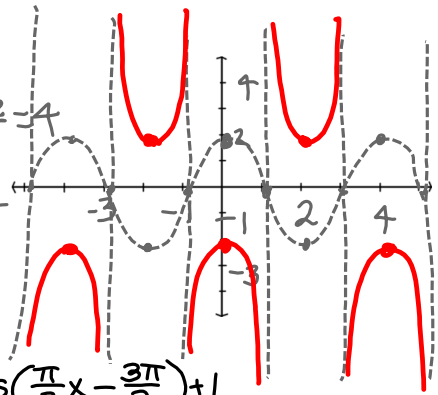
$y = 2\sec\left(\frac{\pi}{2}x - \pi\right) = 2\sec\left[\frac{\pi}{2}(x-2)\right]$

amplitude: 2

period: $\frac{2\pi}{\pi/2} = 2\pi \cdot \frac{2}{\pi} = 4$

horiz. shift: right $\frac{\pi}{\pi/2} = 2$ (2 ticks)

vert. shift: N/A



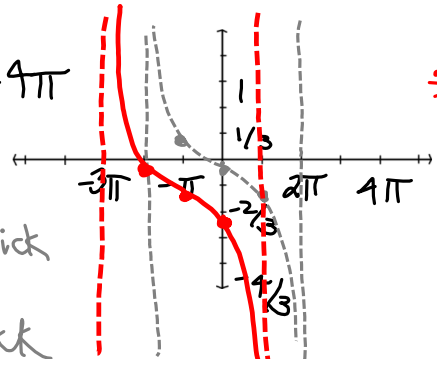
$y = -\frac{1}{3}\tan\left(\frac{1}{4}x + \frac{\pi}{4}\right) - \frac{1}{3}$

amplitude: $\frac{1}{3}$

period: $\frac{\pi}{1/4} = \pi \cdot \frac{4}{1} = 4\pi$

horiz. shift: $\frac{\pi/4}{1/4} = \pi$ left 1 tick

vert. shift: down $\frac{1}{3}$ 1 tick



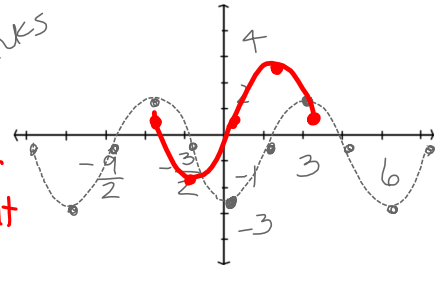
$y = -2\cos\left(\frac{\pi}{3}x - \frac{3\pi}{2}\right) + 1$

amplitude: 2

period: $\frac{2\pi}{\pi/3} = 6$

horiz. shift: $\frac{3\pi}{2} \div \frac{\pi}{3} = \frac{3\pi}{2} \cdot \frac{3}{\pi} = \frac{9}{2}$ right (3 ticks)

vert. shift: up 1



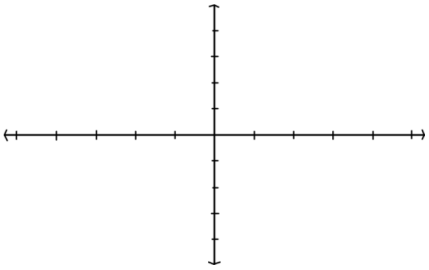
$y = 3\cot\left(\frac{\pi}{5}x\right) + \frac{3}{2}$

"amplitude:"

period:

horiz. shift:

vert. shift:



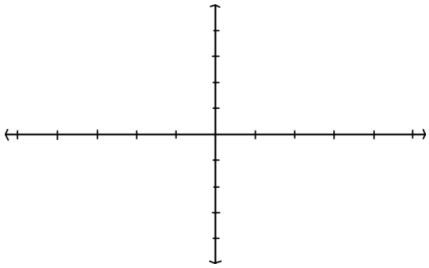
$y = 4\csc\left(3x - \frac{3\pi}{2}\right) + 2$

amplitude:

period:

horiz. shift:

vert. shift:



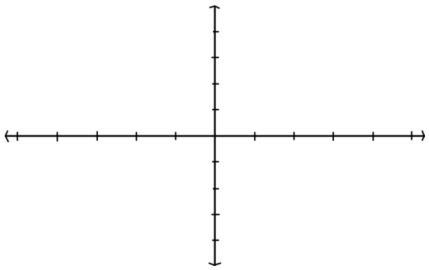
$y = \frac{1}{2}\tan\left(\frac{\pi}{2}x + \pi\right) - 1$

"amplitude:"

period:

horiz. shift:

vert. shift:

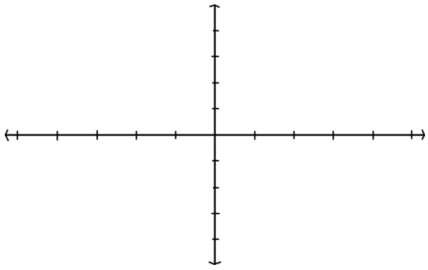


amplitude:

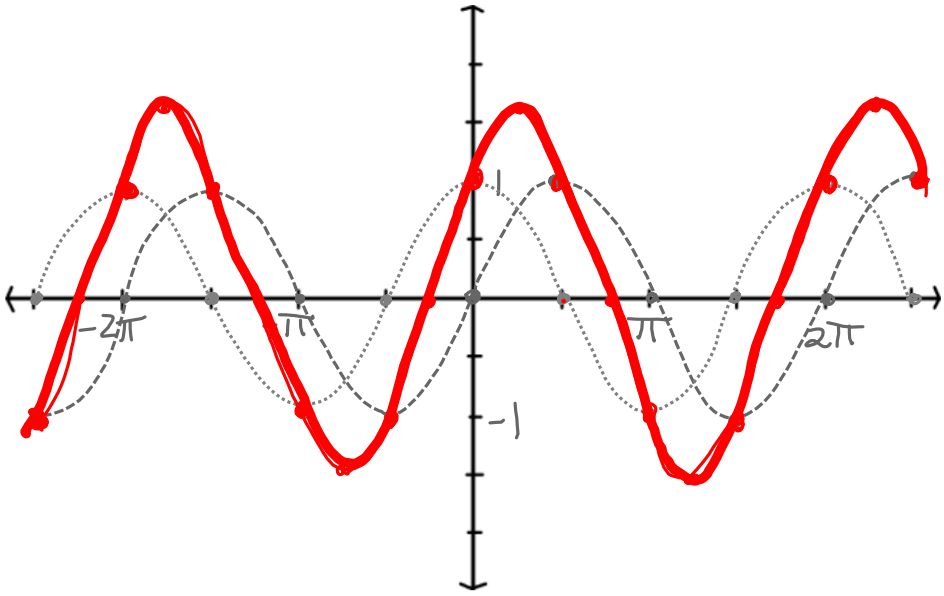
period:

horiz. shift:

vert. shift:



$y = \sin x + \cos x$



$y = 2\sin x - \cos 2x$

$= 2\sin x + (-\cos 2x)$

amp 2, per 2π amp 1, per π