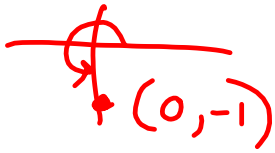
Turn in Homework #4: Graphing worksheet problems **#1-48**

Test #2 - Thurs 12/12?

Review:

Find the exact value of the following.

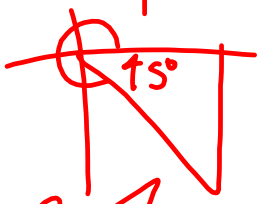
a. cos 270° 0



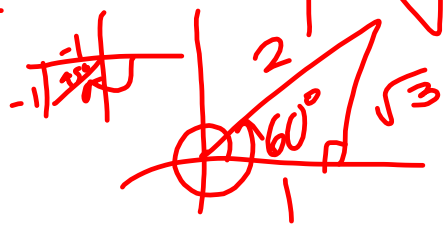
b. sin −225° $1/\sqrt{2}$

c. csc 315° $-\sqrt{2}$

d. sec 420° 2



e. tan −135° 1



Quiz #4 Solutions.

1. 2π, 2. 2π, 3. π

4. vert, 5. as

6. hor., 7. opp.

8. str., 9. shift

12. undefined, 13. $\frac{-1}{\sqrt{2}}$,

14. $-2/\sqrt{3}$

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)

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

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

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

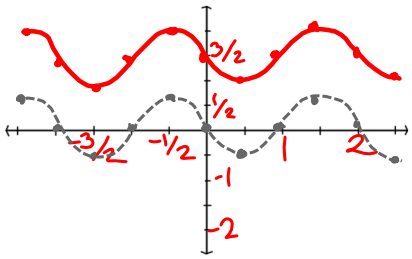
$y = -\frac{1}{2}\sin \pi x + \frac{3}{2}$

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

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

horiz. shift: none

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



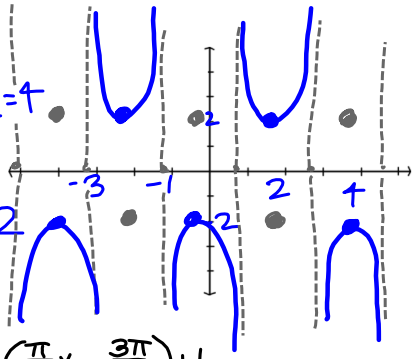
$y = 2\sec\left(\frac{\pi}{2}x - \pi\right)$

amplitude: 2

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

horiz. shift: right $\frac{\pi}{\pi/2} = \frac{\pi}{1} \cdot \frac{2}{\pi} = 2$

vert. shift: none



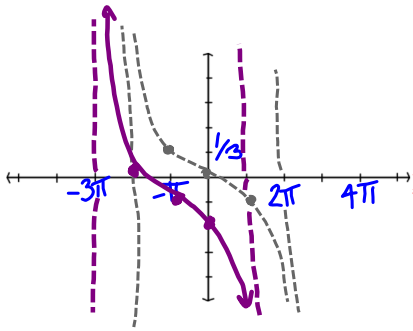
$y = -\frac{1}{3}\tan\left(\frac{1}{4}x + \frac{\pi}{4}\right) - \frac{1}{3}$

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

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

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

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



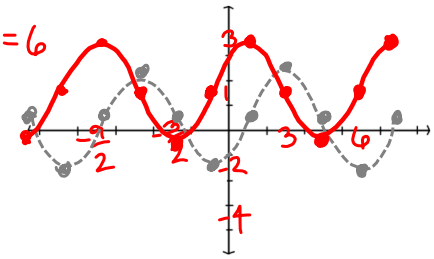
$y = -2\cos\left(\frac{\pi}{3}x - \frac{3\pi}{2}\right) + 1$

amplitude: 2

period: $\frac{2\pi}{\pi/3} = \frac{2\pi}{1} \cdot \frac{3}{\pi} = 6$

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

vert. shift: up 1



$y = \sin x + \cos x$