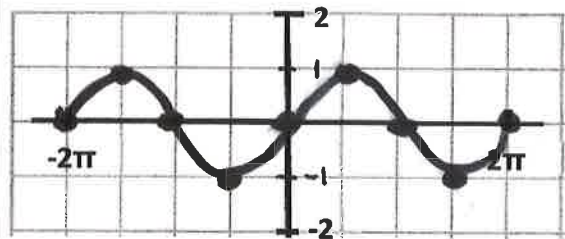


NO unit circle, use graph

Key

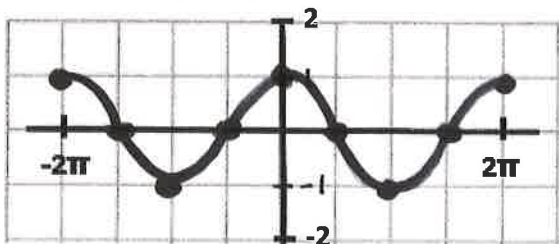
WARM-UP: 1. graph  $y = \sin x$   $-2\pi \leq x \leq 2\pi$



Evaluate:

- a.  $\sin(-2\pi) = 0$
- b.  $\sin(-\frac{\pi}{2}) = -1$
- c.  $\sin(0) = 0$
- d.  $\sin(\frac{3\pi}{2}) = -1$
- e.  $\sin(\frac{5\pi}{2}) = 1$
- f.  $\sin(-\frac{7\pi}{2}) = 1$

WARM-UP: 2. graph  $y = \cos x$   $-2\pi \leq x \leq 2\pi$

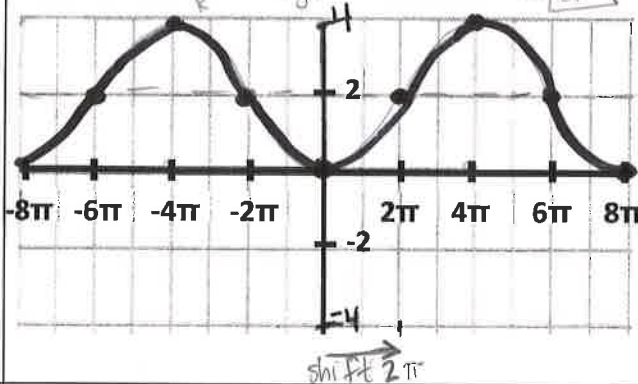


Evaluate:

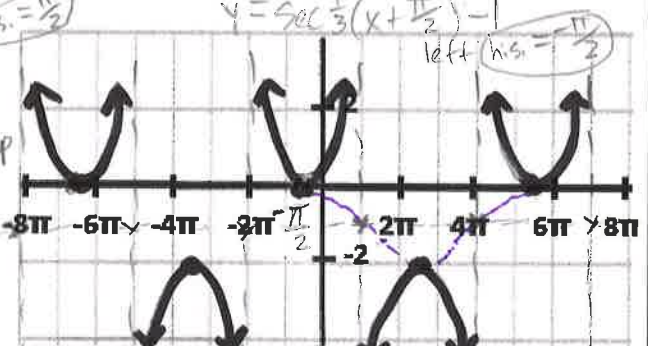
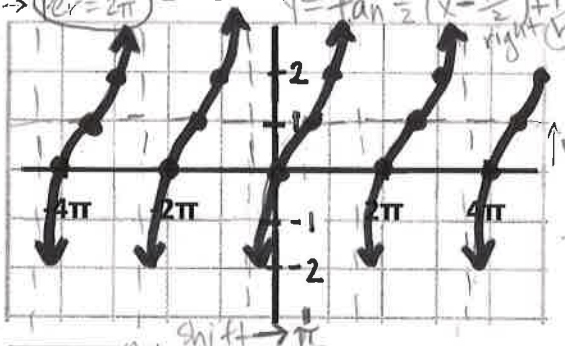
- a.  $\cos(-2\pi) = 1$
- b.  $\cos(-\frac{\pi}{2}) = 0$
- c.  $\cos(0) = 1$
- d.  $\cos(\frac{3\pi}{2}) = 0$
- e.  $\cos(\frac{5\pi}{2}) = 0$
- f.  $\cos(-3\pi) = -1$

Good practice for the graphing quiz!

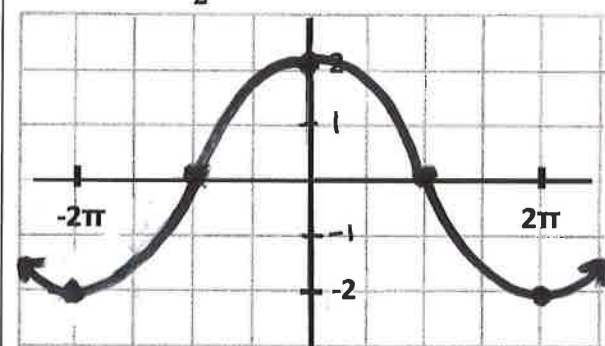
A.  $y = 2\sin(\frac{x}{4} - \frac{\pi}{2}) + 2$   
 Per =  $\frac{2\pi}{\frac{1}{4}} = 8\pi$   
 $y = 2\sin(\frac{1}{4}(x - 2\pi)) + 2$  (right)



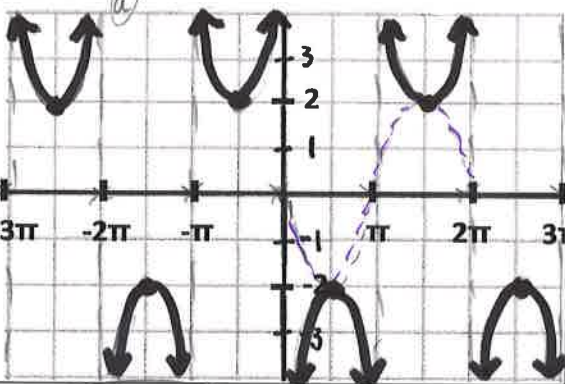
B.  $y = \tan(\frac{x}{2} - \frac{\pi}{4}) + 1$  ← Factor to find horizontal shift! → C.  $y = \sec(\frac{x}{3} + \frac{\pi}{6}) - 1$  (per = 6π)



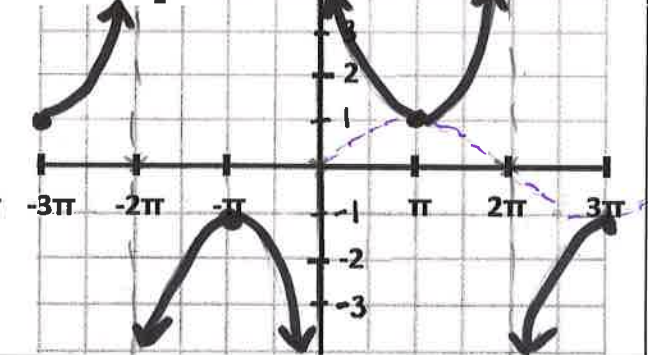
D.  $y = 2\cos\frac{x}{2}$



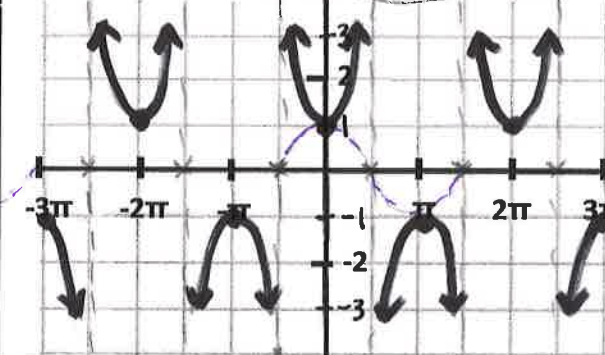
E.  $y = -2\csc x$



F.  $y = \csc\frac{1}{2}x$



G.  $y = \csc(x + \frac{\pi}{2})$  left (h.s. -pi/2)



(per = 2π) flip

per =  $\frac{2\pi}{\frac{1}{2}} = 4\pi$

$-\frac{\pi}{2}$  shift

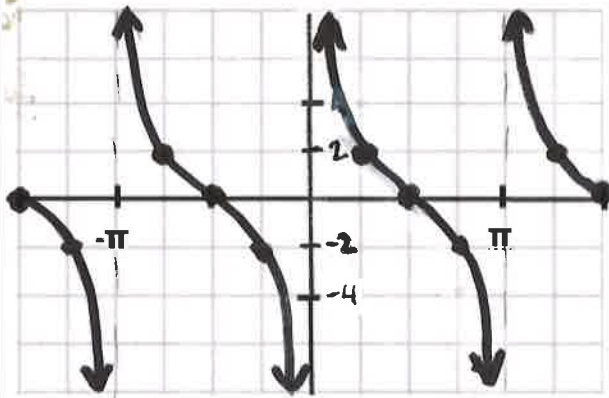
5.4 #14, 20, 46, 47, 52, 58

Reminder: Be sure to factor before identifying the horizontal (phase) shift!

NAME: Key  
PER:

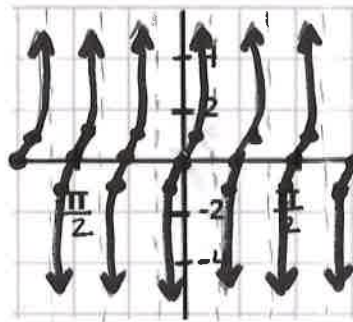
14. equation:

$y = 2 \cot x$   $k=1$   
 $a \uparrow$   
 $per = \frac{\pi}{1} = \pi$



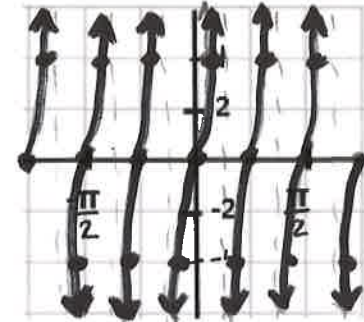
20. equation:

$y = \tan 4x$   $k=4$   
 $a \uparrow$   
 $per = \frac{\pi}{4}$



46. equation:

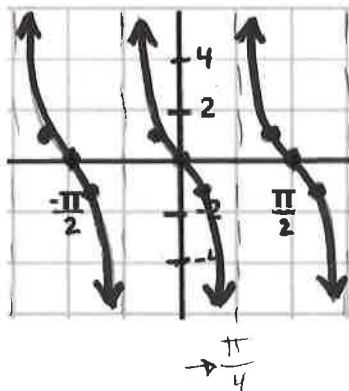
$y = 4 \tan (4x - 2\pi)$   $per = \frac{\pi}{4}$   
 $y = 4 \tan 4(x - \frac{\pi}{2})$   
 $a \uparrow$   $k \uparrow$   $\leftarrow$  right h.s.  $\frac{\pi}{2}$



shift  $\frac{\pi}{2}$  (points & asymptotes land on top of each other)

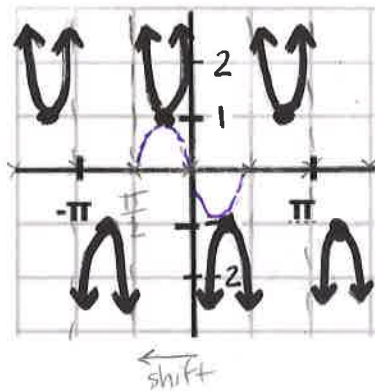
47. equation:

$y = \cot(2x - \frac{\pi}{2})$   
 $y = \cot 2(x - \frac{\pi}{4})$   
 $a \uparrow$   $k \uparrow$   $\leftarrow$  right h.s.  $\frac{\pi}{4}$   
 $per = \frac{\pi}{2}$



52. equation:

$y = \csc 2(x + \frac{\pi}{2})$   $a=1$   
 $k \uparrow$   $\leftarrow$  left h.s.  $-\frac{\pi}{2}$   
 $per = \frac{2\pi}{2} = \pi$



58. equation:

$y = \sec(3x + \frac{\pi}{2})$   
 $y = \sec 3(x + \frac{\pi}{6})$   
 $a \uparrow$   $k \uparrow$   $\leftarrow$  left h.s.  $-\frac{\pi}{6}$   
 $per = \frac{2\pi}{3}$

