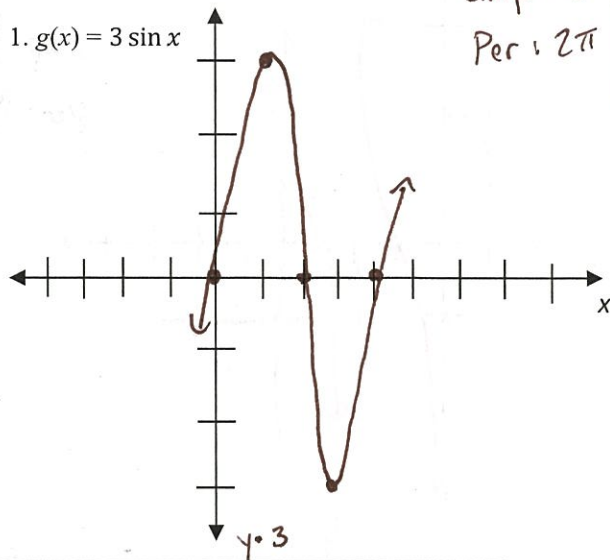


Graph one period of each function. State the amplitude and period of each function. Describe all transformation from the parent function.

1. $g(x) = 3 \sin x$

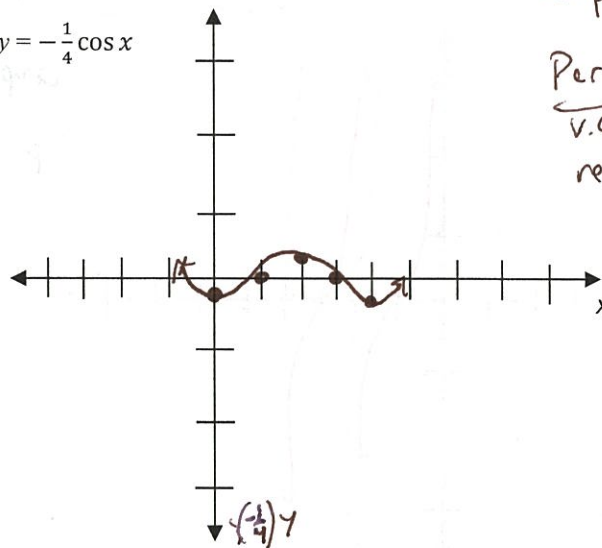
amp: 3 | vs.
Per: 2π | by 3



Original	a / b shift	h / k shift
$(0, 0)$	$(0, 0)$	
$(\pi/2, 1)$	$(\pi/2, 3)$	
$(\pi, 0)$	$(\pi, 0)$	
$(3\pi/2, -1)$	$(3\pi/2, -3)$	
$(2\pi, 0)$	$(2\pi, 0)$	

2. $y = -\frac{1}{4} \cos x$

amp: $\frac{1}{4}$
Per: 2π
v.c. by $\frac{1}{4}$
reflected

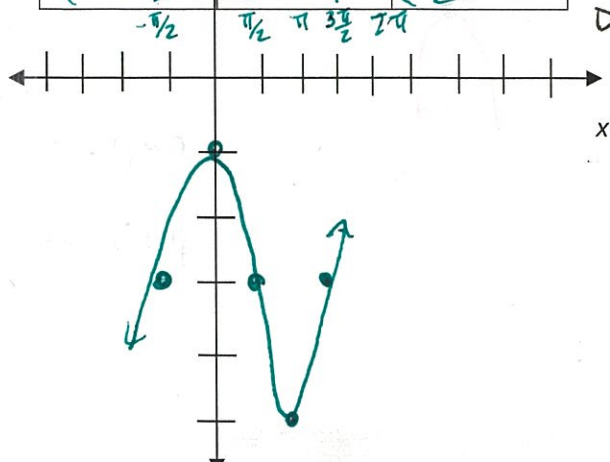


Original	a / b shift	h / k shift
$(0, 1)$	$(0, -1/4)$	
$(\pi/2, 0)$	$(\pi/2, 0)$	
$(\pi, -1)$	$(\pi, 1/4)$	
$(3\pi/2, 0)$	$(3\pi/2, 0)$	
$(2\pi, 1)$	$(2\pi, -1/4)$	

3. $f(x) = 2 \sin(x + \frac{\pi}{2}) - 3$

Original	a / b shift	h / k shift
$(0, 0)$	$(0, 0)$	$(-\frac{\pi}{2}, -3)$
$(\pi/2, 1)$	$(\frac{\pi}{2}, 2)$	$(0, -1)$
$(\pi, 0)$	$(\pi, 0)$	$(\frac{\pi}{2}, -3)$
$(3\pi/2, -1)$	$(\frac{3\pi}{2}, -2)$	$(\pi, -5)$
$(2\pi, 0)$	$(2\pi, 0)$	$(\frac{3\pi}{2}, -3)$

amp: 2
Per: 2π
Vert Stretch
 $L \pi/2$
Down 3

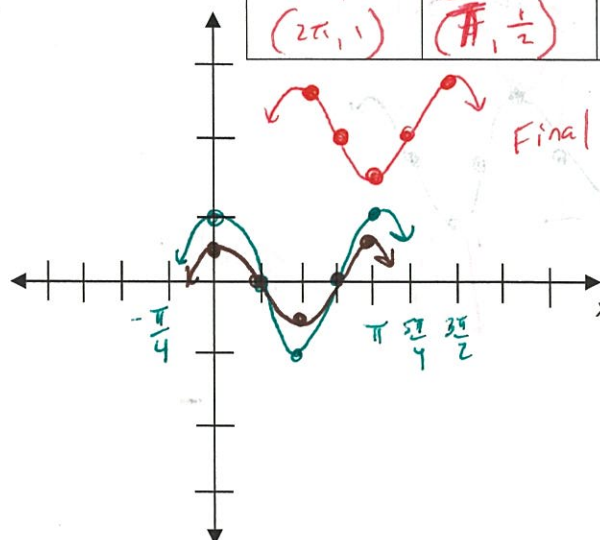


4. $y = \frac{1}{2} \cos(2x - \pi) + 2$

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

Original	a / b shift	h / k shift
$(0, 1)$	$(0, 1/2)$	$(\frac{\pi}{2}, 5/2)$
$(\pi/2, 0)$	$(\pi/4, 0)$	$(\frac{3\pi}{4}, 2)$
$(\pi, -1)$	$(\frac{\pi}{2}, -1/2)$	$(\pi, 3/2)$
$(3\pi/2, 0)$	$(\frac{3\pi}{4}, 0)$	$(\frac{5\pi}{4}, 2)$
$(2\pi, 1)$	$(\pi, 1/2)$	$(\frac{3\pi}{2}, 5/2)$

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



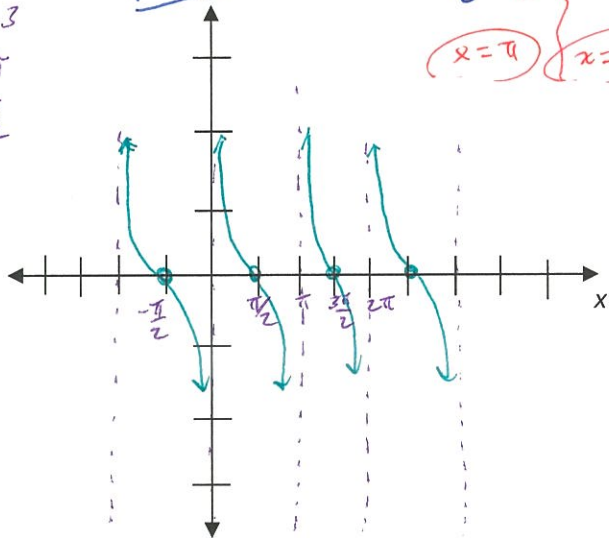
amp: $\frac{1}{2}$
Per: π
Horizontal
compress
 $R \frac{\pi}{2}$
Up 2

Then sketch the graph showing 2 asymptotes and the portion of the graph between the asymptotes. State the amplitude, period, and vertical asymptote equations of each function.

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

amp = 3
per = π
sc = $\frac{\pi}{2}$

$x - \frac{\pi}{2} = \frac{\pi}{2} \quad x - \frac{\pi}{2} = \frac{3\pi}{2}$
 $x = \pi \quad x = 2\pi$

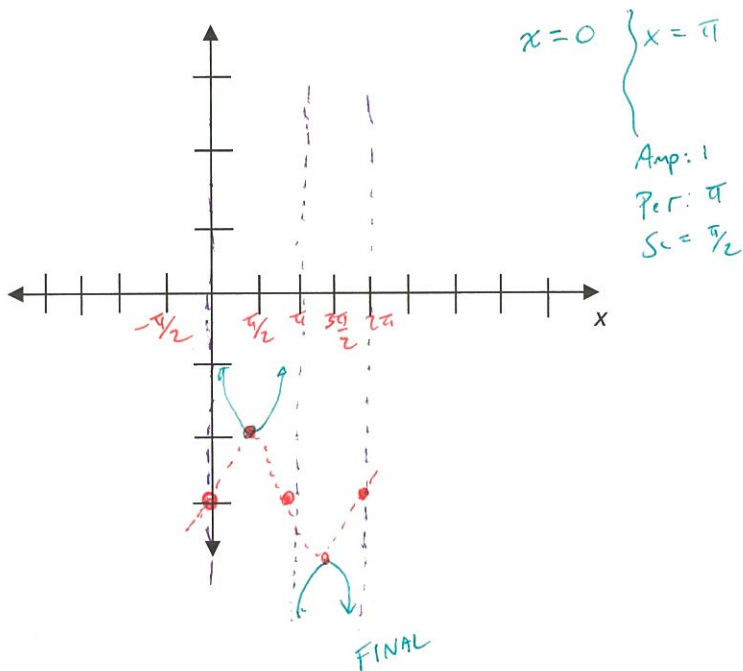


Original	a / b shift	h / k shift
(0, 0)		(0, -3)
($\frac{\pi}{2}$, 1)		($\frac{\pi}{2}$, -2)
(π , 0)		(π , -3)
($\frac{3\pi}{2}$, -1)		($\frac{3\pi}{2}$, -4)
(2 π , 0)		(2 π , -3)

P = 2π
sc = $\frac{\pi}{2}$

Think $y = \sin x - 3$

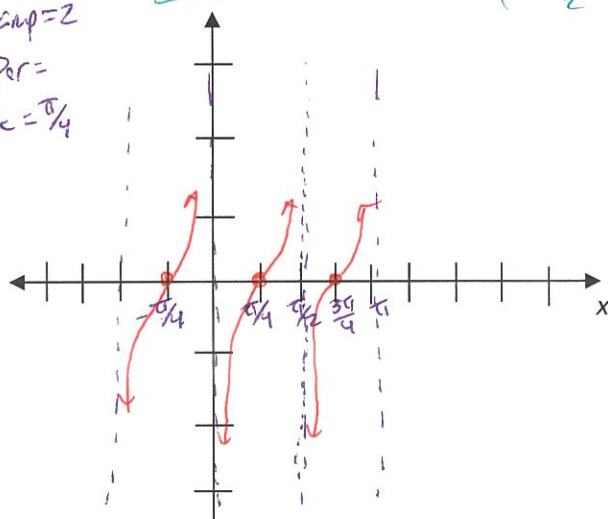
7. $y = \csc x - 3$



6. $y = -2\cot 2x$

amp = 2
per = π
sc = $\frac{\pi}{4}$

$2x = 0 \quad 2x = \pi$
 $x = 0 \quad x = \frac{\pi}{2}$

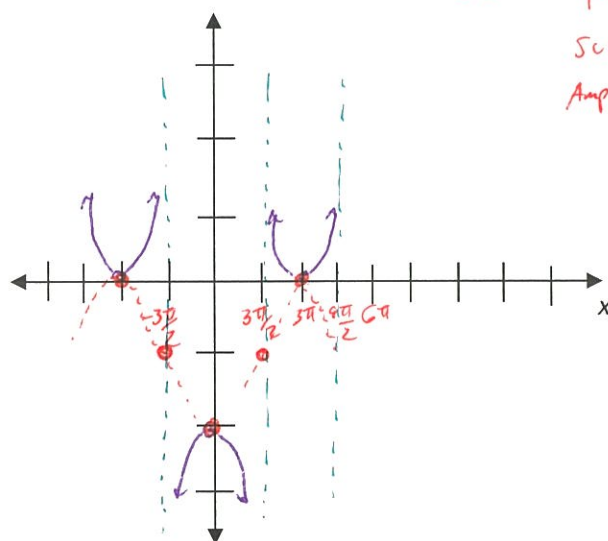


Original	a / b shift	h / k shift
(0, 1)	(0, 1)	(-3 π , 0)
($\frac{\pi}{2}$, 0)	($\frac{3\pi}{2}$, 0)	(- $\frac{3\pi}{2}$, -1)
(π , -1)	(3 π , -1)	(0, -2)
($\frac{3\pi}{2}$, 0)	($\frac{9\pi}{2}$, 0)	($\frac{3\pi}{2}$, -1)
(2 π , 1)	(6 π , 1)	(3 π , 0)

8. $y = \sec\left(\frac{x}{3} + \pi\right) - 1$

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

P = 3π
sc = $\frac{3\pi}{2}$
Amp = 1



$\frac{x}{3} + \pi = \frac{\pi}{2} \quad \frac{x}{3} + \pi = \frac{3\pi}{2}$
 $\frac{x}{3} = -\frac{5\pi}{2} \quad \frac{x}{3} = \frac{\pi}{2}$
 $x = -\frac{15\pi}{2} \quad x = \frac{3\pi}{2}$