Graphing Trig

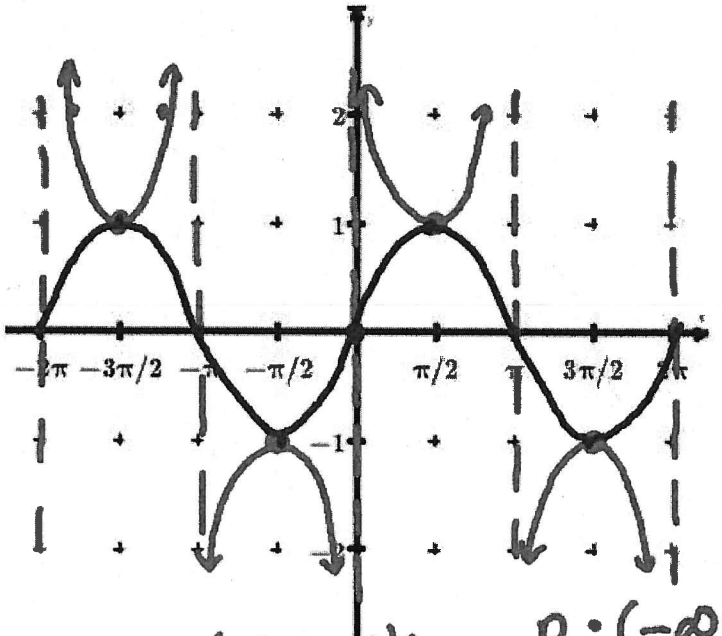
csc(x)/sec(x)/cot(x)

Name_____

Date: _____ Block: _____

Sin

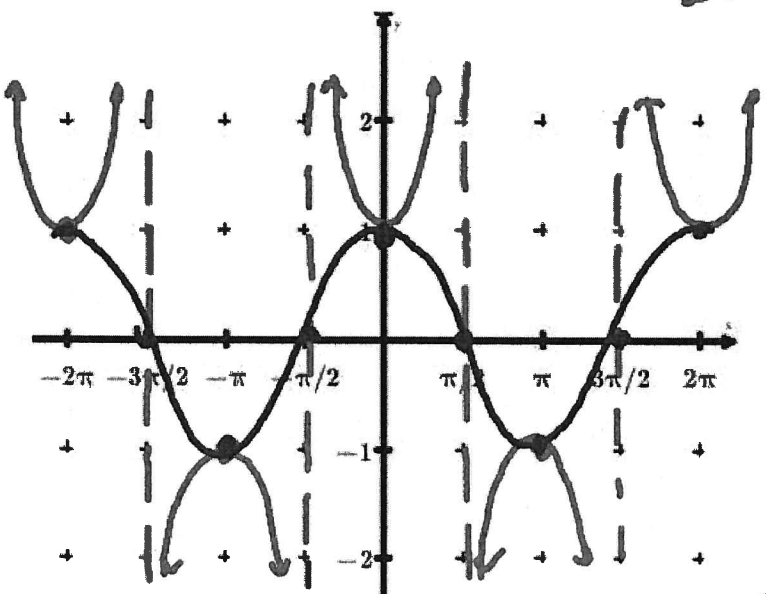
	x	y =csc(x)
0	-2π	und.
1	$-\frac{3\pi}{2}$	1
0	$-\pi$	und.
-1	$-\frac{\pi}{2}$	-1
0	0	und
1	$\frac{\pi}{2}$	1
0	π	und
-1	$\frac{3\pi}{2}$	-1
0	2π	und



D: $x \neq 0 + \pi k$ R: $(-\infty, -1] \cup [1, \infty)$

COS

	x	y =sec(x)
1	-2π	1
0	$-\frac{3\pi}{2}$	und.
-1	$-\pi$	-1
0	$-\frac{\pi}{2}$	und.
1	0	1
0	$\frac{\pi}{2}$	und.
-1	π	-1
0	$\frac{3\pi}{2}$	und
1	2π	1

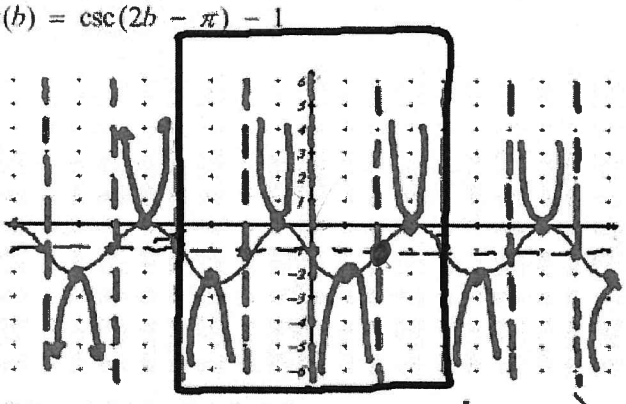


D: $x \neq \frac{\pi}{2} + \pi k$ R: $(-\infty, -1] \cup [1, \infty)$

$y = \sin(2x - \pi) - 1$

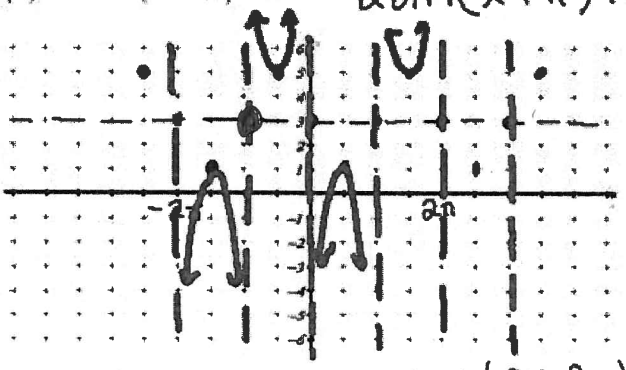
EXAMPLE ONE→ Graph the following functions

Sin a) $k(b) = \csc(2b - \pi) - 1$



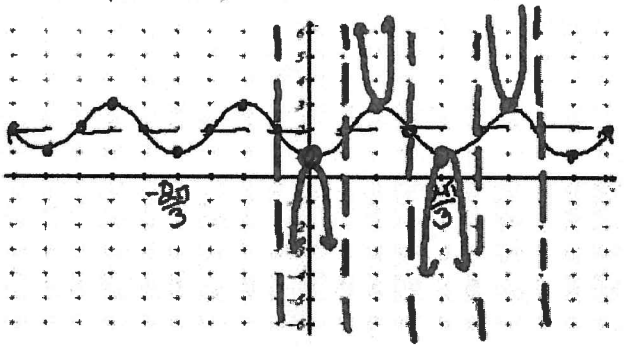
Amplitude: 1
Period: π
Unit: $\pi/4$
Phase Shift: $+\frac{\pi}{2}$
Vertical Shift: -1

Sin b) $g(x) = 2\csc(x + \pi) + 3$ $2\sin(x+\pi)+3$



Amplitude: 2
Period: 2π
Unit: $\pi/2$
Phase Shift: $-\pi$
Vertical Shift: $+3$

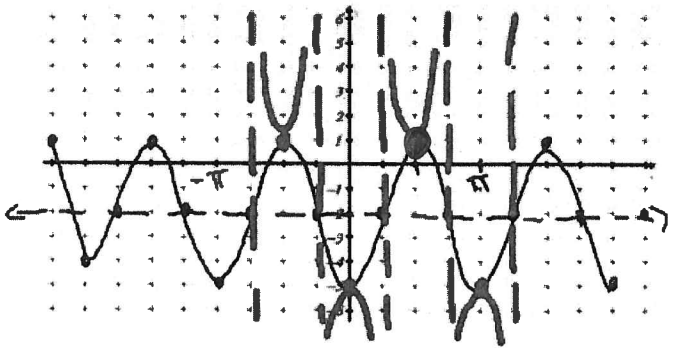
Cos c) $y = -\sec(3x - 2\pi) + 2$ $-\cos(3x-2\pi)+2$



Amplitude: 1
Period: $2\pi/3$
Unit: $\pi/12 = \frac{\pi}{12}$
Phase Shift: $+\frac{2\pi}{3}$
Vertical Shift: $+2$

$3x - 2\pi = 0$
$3x = 2\pi$
$x = \frac{2\pi}{3}$

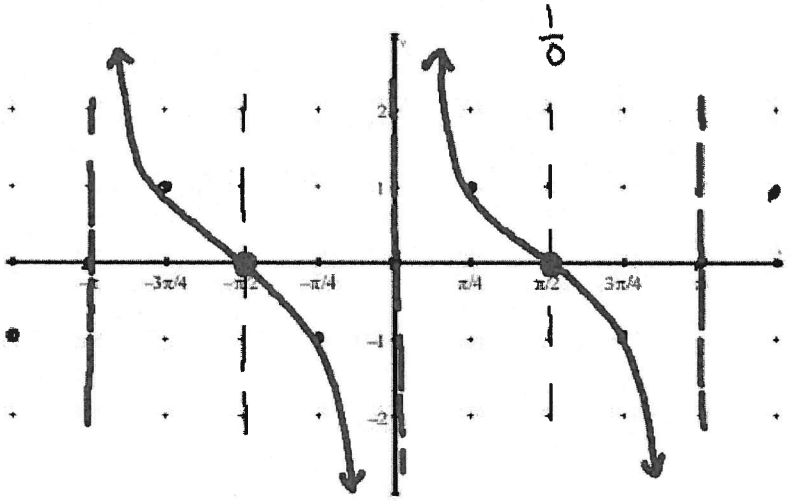
Cos d) $x(t) = 3\sec(2t - \pi) - 2$ $3\cos(2t-\pi)-2$



Amplitude: 3
Period: π
Unit: $\pi/4$
Phase Shift: $\frac{\pi}{2}$
Vertical Shift: -2

x	y = cot(x)
$-\pi$	und.
$-\frac{3\pi}{4}$	1
$-\frac{\pi}{2}$	0
$-\frac{\pi}{4}$	-1
0	und
$\frac{\pi}{4}$	1
$\frac{\pi}{2}$	0
$\frac{3\pi}{4}$	-1
π	und

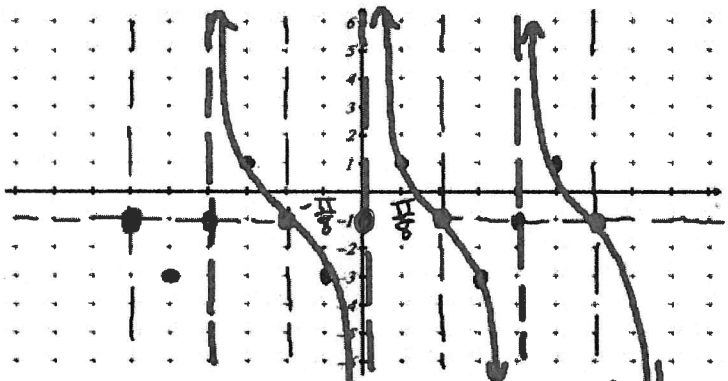
tan: 0, 1, undef, -1, 0, 1, undef, -1, 0



EXAMPLE TWO→ Graphing Cotangent

a) $v(t) = 2\cot(2t + \pi) - 1$ $2\tan(2t+\pi)-1$

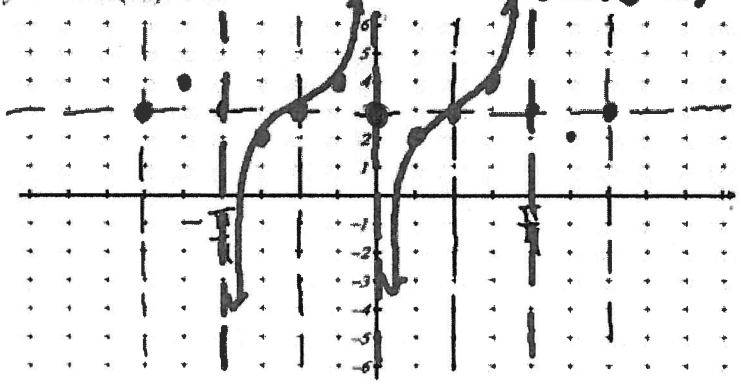
tan $\frac{\pi}{2}$



Amplitude: 2
Period: π/2 ← match
Unit: π/8
Phase Shift: $-\frac{\pi}{2}$
Vertical Shift: -1

b) $y = -\cot(4x) + 3$ $\tan(4x)+3$

tan $\frac{\pi}{2}$



Amplitude: 1
Period: π/4
Unit: π/16
Phase Shift: 0
Vertical Shift: +3

Homework→ Worksheet