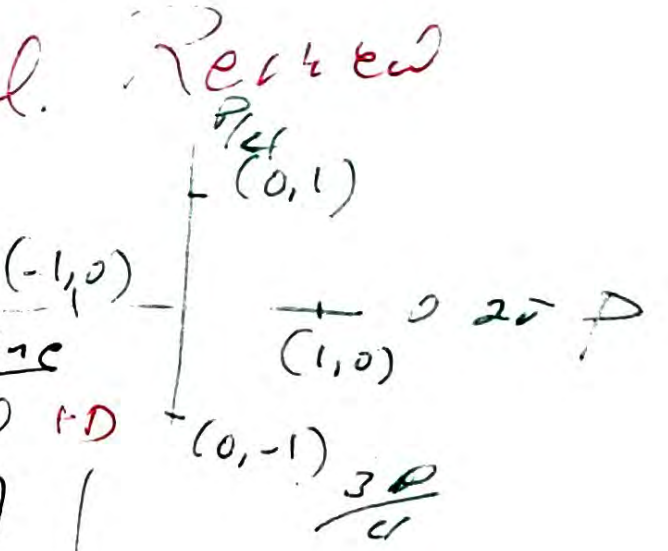
Pre-Cal. Review



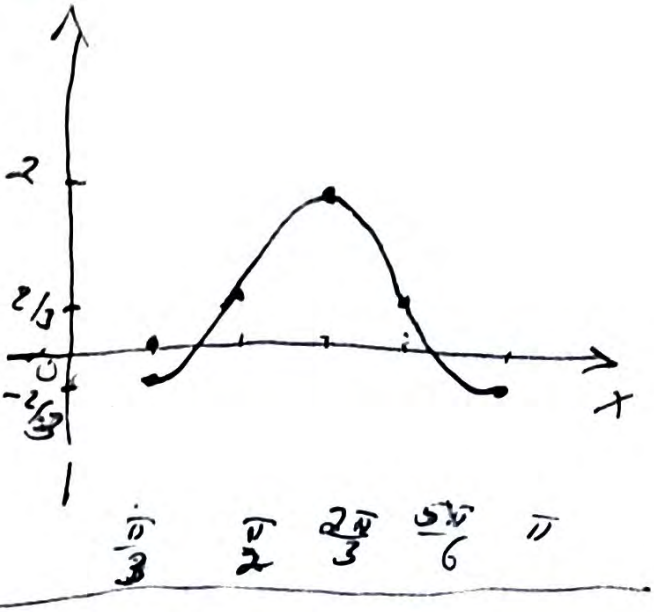
	Cosine	Sine
0	A+D	0 +D
$\frac{P}{4}$	0	H
$\frac{P}{2}$	-A	0
$\frac{3P}{4}$	0	-A
P	A	0

Ex: |A|, P, φ, VT + table + sketch.

Ex. #4 $y = \frac{2}{3} - \frac{4}{3}\cos(3x - \pi)$

$|A| = \frac{4}{3}$ $P = \frac{2\pi}{3}$ $\phi = \frac{\pi}{3}$ VT: $y = \frac{2}{3}$

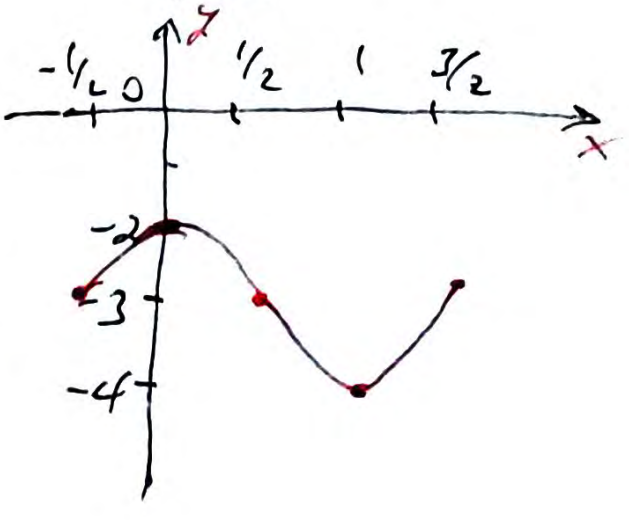
	x	y
0 + π/3	π/3	$-\frac{4}{3} + \frac{2}{3} = -\frac{2}{3}$
π/6 + π/3	π/2	2/3
π/3	2π/3	$\frac{4}{3} + \frac{2}{3} = 2$
π/2	5π/6	2/3
2π/3	π	$-\frac{4}{3} + \frac{2}{3} = -\frac{2}{3}$



#13 $y = -3 + \sin(\pi x - (\frac{\pi}{2}))$

$|A| = 1$ $P = \frac{2\pi}{\pi} = 2$ $\phi = -\frac{\pi/2}{\pi} = -\frac{1}{2}$ VT: $y = -3$

		x	y	y
0	−1/2	1/2	0 − 3	−3
1/4 P	1/2 − 1/2	0	1 − 3	−2
1/2 P	1	1/2	0 − 3	−3
3/4 P	3/2	1	−1 − 3	−4
P	2	3/2	0 − 3	−3



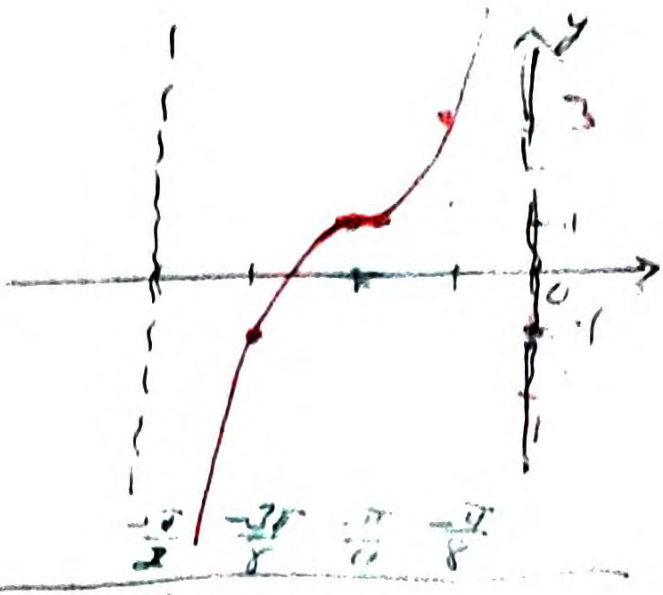
1.2. #1

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

$1 - 2\cot(2x + \pi)$

HL: n/a $P = \frac{\pi}{2}$ $\phi = -\frac{\pi}{2}$ VT: $y = 1$

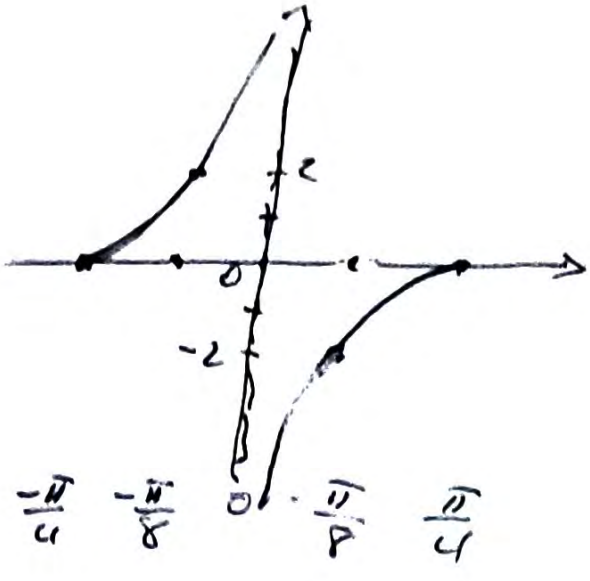
		x	y
0	$-\frac{\pi}{2}$	0	∞
$\frac{\pi}{8}$	$-\frac{\pi}{2}$	$\frac{\pi}{8}$	$2+1=-1$
$\frac{\pi}{4}$		$-\frac{\pi}{4}$	$0+1=1$
$\frac{3\pi}{8}$		$-\frac{\pi}{8}$	$2+1=3$
$\frac{\pi}{2}$	$\nearrow$	0	∞



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

HL: n/a $P = \frac{\pi}{2}$ $\phi = -\frac{\pi}{4}$ VT: $y = 0$

		x	y
0	$-\frac{\pi}{4}$	$-\frac{\pi}{4}$	0
$\frac{\pi}{8}$	$-\frac{\pi}{4}$	$-\frac{\pi}{8}$	2
$\frac{\pi}{4}$		0	∞
$\frac{3\pi}{8}$		$\frac{\pi}{8}$	-2
$\frac{\pi}{2}$	$\nearrow$	$\frac{\pi}{4}$	0

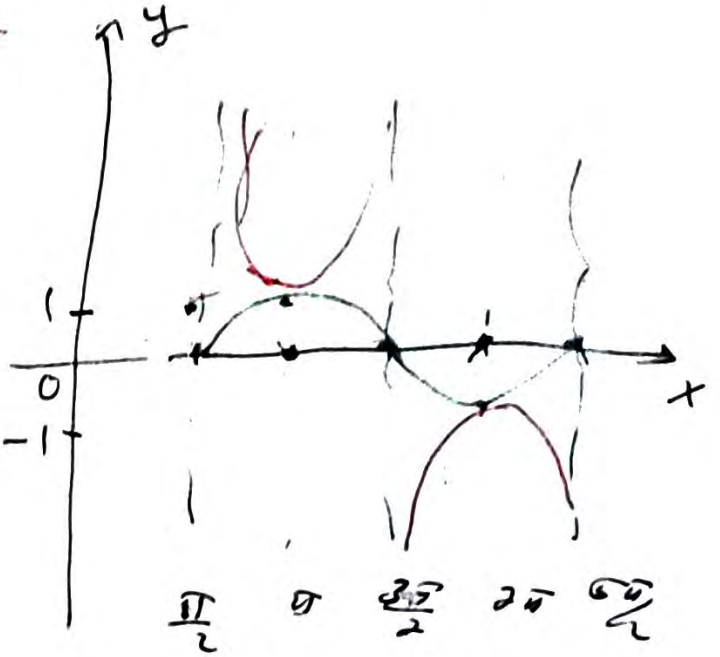


1.3 #61

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

$|A| =$ none $P = 2\pi$ $\phi = \frac{\pi}{2}$ VT: $y = 0$

		x	$y = \csc$
0	$+\frac{\pi}{2}$	$\frac{\pi}{2}$	1
$\frac{\pi}{2}$	$+\frac{\pi}{2}$	π	∄
π		$\frac{3\pi}{2}$	0
$\frac{3\pi}{2}$		2π	−1
2π		$\frac{5\pi}{2}$	1

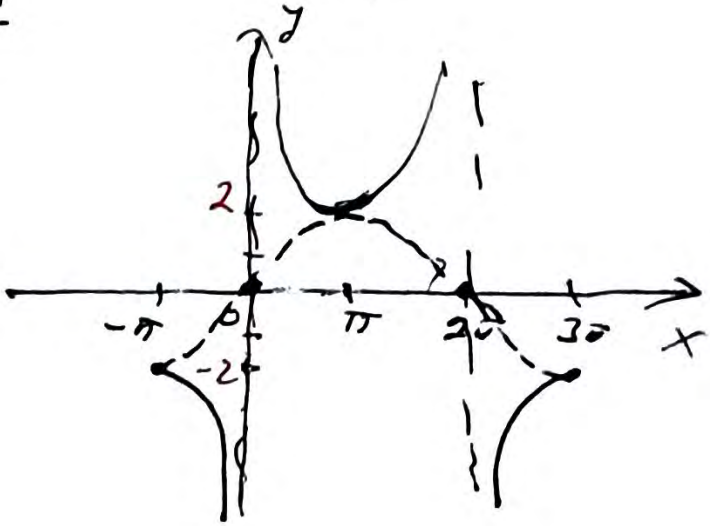


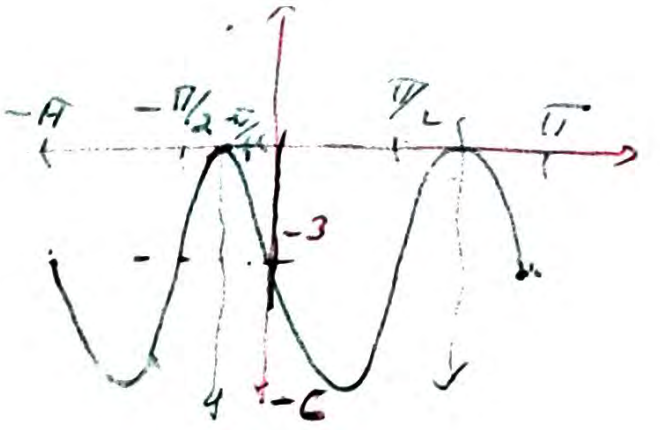
#64 $y = -2\sec\left(\frac{1}{2}x + \frac{\pi}{2}\right)$

$|A| =$ n/a $P = \frac{2\pi}{\frac{1}{2}} = 4\pi$ $\phi = -\pi$ VT: $y = 0$

$= -\frac{\pi}{2}\,\frac{1}{\frac{1}{2}}$

		x	$y = -2\cos$
0	$-\pi$	$-\pi$	−2
π	$-\pi$	0	0
2π		π	+2
3π		2π	0
4π		3π	−2





$\phi = 0 \Rightarrow C = 0$
$|A| = 3$

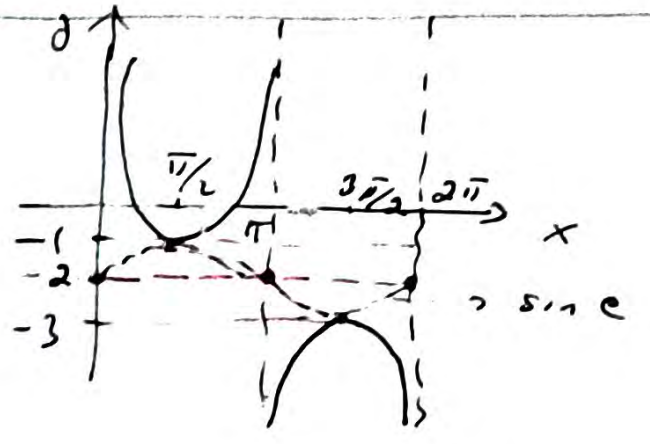
$P = \frac{2\pi}{B} = \pi \Rightarrow B = 2$

VT: $D = -3$

$$y = -3\sin(2x) - 3$$

$$-\pi \le x \le \pi$$

13



$C = 0$

$P = \frac{2\pi}{B} = 2\pi$

$B = 1$

$A = 1$ ← sine

$D = -2$

$$y = \csc x - 2$$

$$0 \le x \le 2\pi$$

7.1 #31

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

$|A| = 1 \qquad P = \frac{2\pi}{\pi} = 2 \qquad \phi = -\frac{\pi}{2} \cdot \frac{1}{\pi} = -\frac{1}{2}$

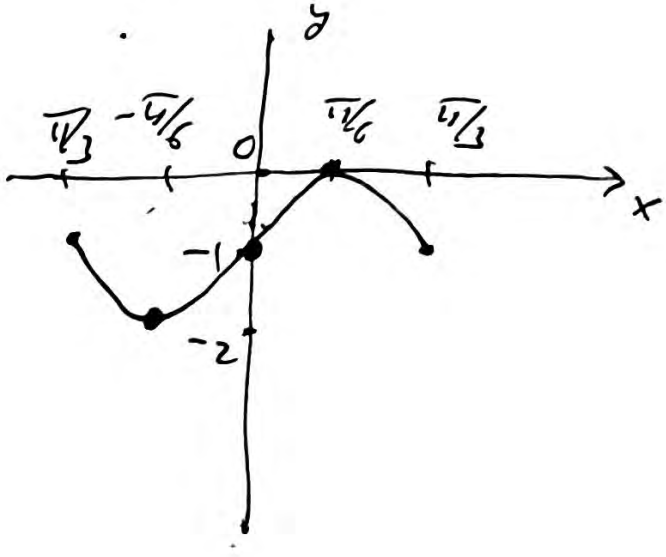
VT: $y = -3$

	x
0 $-\frac{1}{2}$	
A $\frac{1}{2}$ $-\frac{1}{2}$	
$\frac{1}{2}$ 1	|
$\frac{3}{4}$ $\frac{3}{2}$	|
P 2	|

#17 $y = -\sin(3x + \pi) - 1$

$|A| = 1 \qquad P = \frac{2\pi}{3} \qquad \phi = -\frac{\pi}{3} \qquad VT: y = -1$

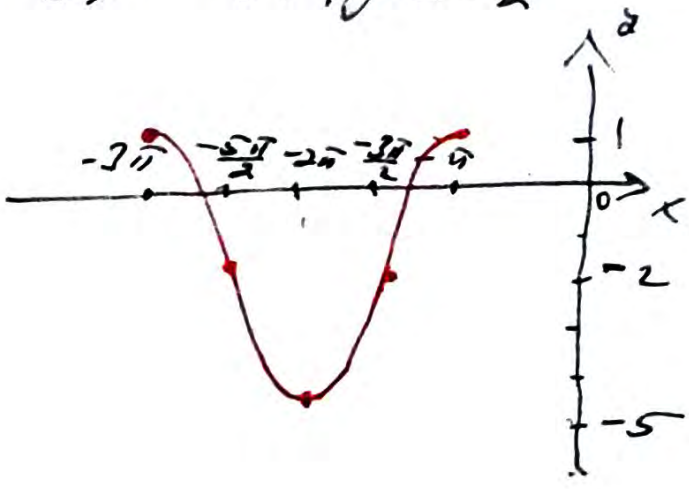
	x	y
$0 - \frac{\pi}{3}$	$-\frac{\pi}{3}$	$0 - 1 = -1$
$\frac{\pi}{6} - \frac{\pi}{3}$	$-\frac{\pi}{6}$	$-1 - 1 = -2$
$\frac{\pi}{3}$ |	0	$0 - 1 = -1$
$\frac{\pi}{2}$ |	$\frac{\pi}{6}$	$+1 - 1 = 0$
$\frac{2\pi}{3}$ |	$\frac{\pi}{3}$	$0 - 1 = -1$



#16 $y = 3\cos(x + 3\pi) - 2$

$|A| = 3$ $P = 2\pi$ $\phi = -3\pi$ VT: $y = -2$

		x	y	
0	-3π	-3π	$3-2$	1
$\frac{\pi}{2}$	-3π	$-\frac{5\pi}{2}$	$0-2$	-2
π		-2π	$-3-2$	-5
$\frac{3\pi}{2}$		$-\frac{3\pi}{2}$	$0-2$	-2
2π		$-\pi$	$3-2$	1



Cosecant → Sine

Secant → Cosine

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

$|A| =$ none $P = \frac{2\pi}{3}$ $\phi = \frac{\pi}{6}$ VT: $y = 0$

	x	$y = 5\sin$
$0 + \frac{\pi}{6}$	$\frac{\pi}{6}$	0
$\frac{\pi}{6} + \frac{\pi}{6}$	$\frac{\pi}{3}$	5
$\frac{\pi}{3}$	$\frac{\pi}{2}$	0
$\frac{\pi}{2}$	$\frac{2\pi}{3}$	-5
$\frac{2\pi}{3}$	$\frac{5\pi}{6}$	0