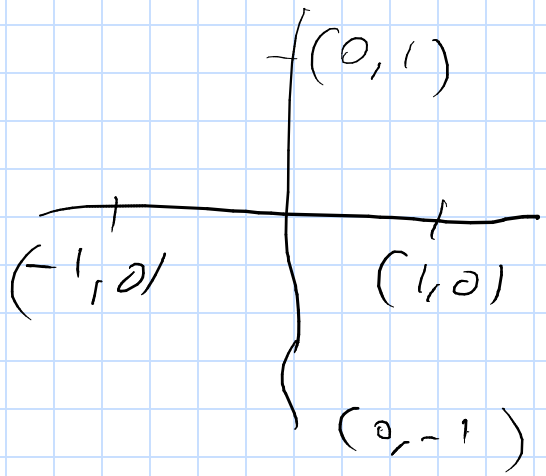
cosine	sine
A	0
0	A
-A	0
0	-A
A	0



otherwise will result "0" on your exam.

		cosine	sine	tan	cot
0	$+\varphi$	A	0	0	∞
$\frac{1}{4}P$		0	A	A	A
$\frac{1}{2}P$		-A	0	$\nexists$	0
$\frac{3}{4}P$		0	-A	-A	-A
P		A	0	0	∞

tangent.

No Amplitude

Period: $\frac{\pi}{|B|}$

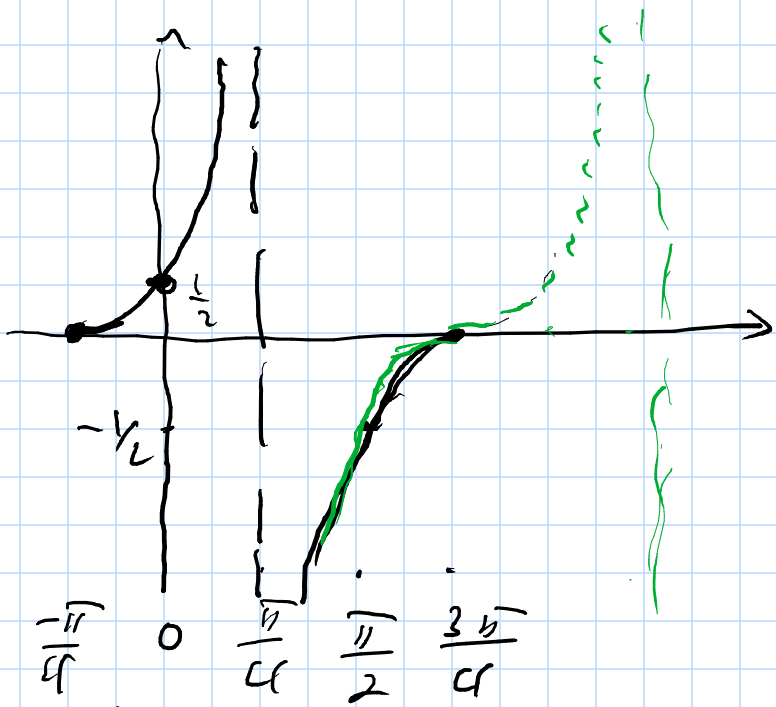
Phase shift: $\Phi = -\frac{C}{B}$

Vertical Translation: VT: $y = D$

Ex $y = \frac{1}{2}\tan\left(x + \frac{\pi}{4}\right)$

$|A| =$ none $\quad P = \frac{\pi}{B} = \pi \quad \phi = -\frac{C}{B} = -\frac{\pi}{4} \quad VI: y = 0$

		x	y
0	$-\frac{\pi}{4}$	$-\frac{\pi}{4}$	0
$\frac{\pi}{4}$	$-\frac{\pi}{4}$	0	$\frac{1}{2}$
$\frac{\pi}{2}$		$\frac{\pi}{4}$	∞
$\frac{3\pi}{4}$		$\frac{\pi}{2}$	$-\frac{1}{2}$
π		$\frac{3\pi}{4}$	0



$\begin{cases} x = (2n+1)\frac{\pi}{2} & \text{Asymptotes} \\ x\text{-intercept:} \quad x = n\pi \end{cases}$

Cotagent: $\begin{cases} \text{asymptotes:} \quad x = n\pi \\ x\text{-intercept:} \quad x = (2n+1)\frac{\pi}{2} \end{cases}$

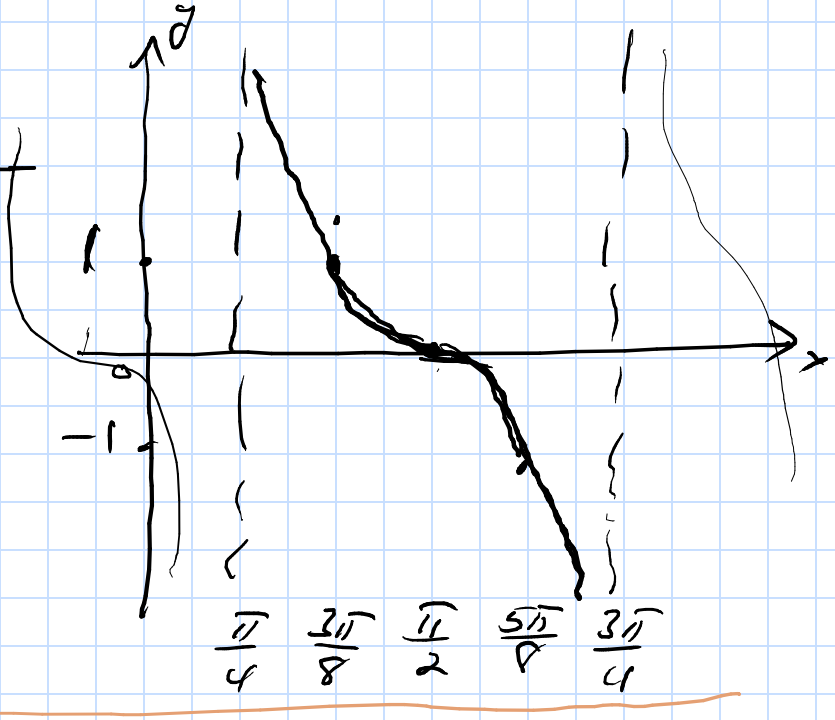
$|A| =$ none $\quad P = \frac{\pi}{|B|} \quad \phi = -\frac{C}{B} \quad VI: y = 0$

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

$|A| = \text{none}$ $\quad P = \frac{\pi}{2}$ $\quad \phi = -\frac{-\pi}{2} \cdot \frac{1}{2} = \frac{\pi}{4}$

VT: $y = 0$

		x	y
0	$+\frac{\pi}{4}$	$\frac{\pi}{4}$	∞
$\frac{\pi}{8}$	$+\frac{\pi}{4}$	$\frac{3\pi}{8}$	1
$\frac{\pi}{4}$		$\frac{\pi}{2}$	0
$\frac{3\pi}{8}$		$\frac{5\pi}{8}$	-1
$\frac{\pi}{2}$		$\frac{3\pi}{4}$	∞

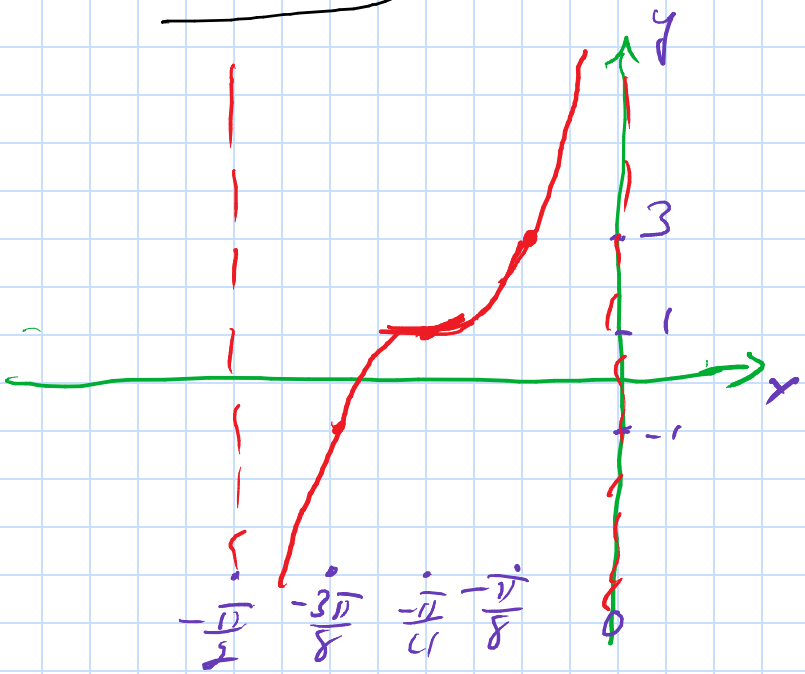


7/ $y = 1 - 2\cot 2\left(x + \frac{\pi}{2}\right)$ 1 cycle

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

$|A| = \text{none}$ $\quad P = \frac{\pi}{2} = \frac{\pi}{2}$ $\quad \phi = -\frac{\pi}{2}$ $\quad$ VT: $y = 1$

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

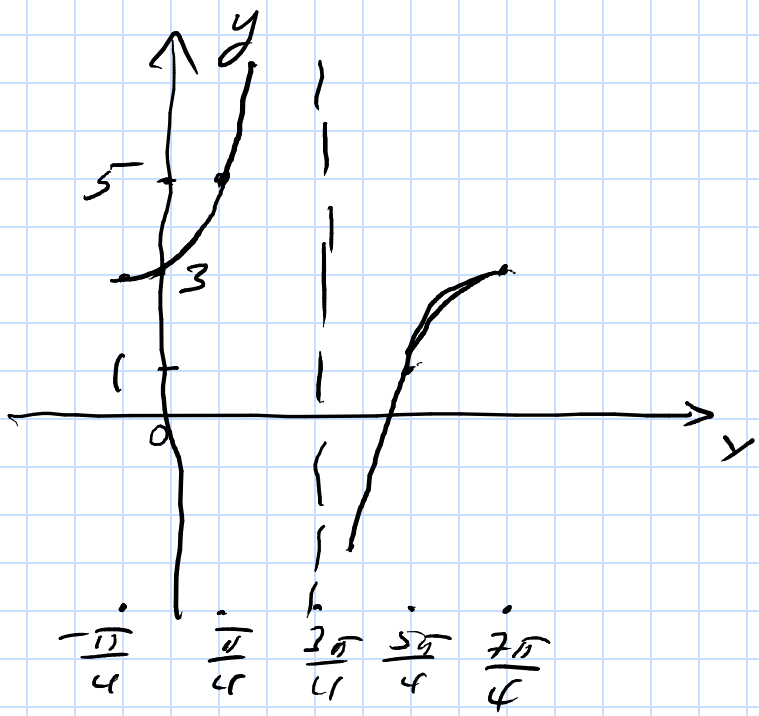


10/ $y = 3 + 2\tan\left(\frac{x}{2} + \frac{\pi}{8}\right)$

$|A| =$ none $P = \frac{\pi}{1/2} = 2\pi$ $\phi = -\frac{\pi}{8}\cdot 2 = -\frac{\pi}{4}$

V.T.: $y = 3$

	x		y
0 $-\frac{\pi}{4}$	$-\frac{\pi}{4}$	$0+3$	3
$\frac{\pi}{2}$ $-\frac{\pi}{4}$	$\frac{\pi}{4}$	$2+3$	5
π	$\frac{3\pi}{4}$	∞	∞
$\frac{3\pi}{2}$	$\frac{5\pi}{4}$	$-2+3$	1
2π	$\frac{7\pi}{4}$	$0+3$	3

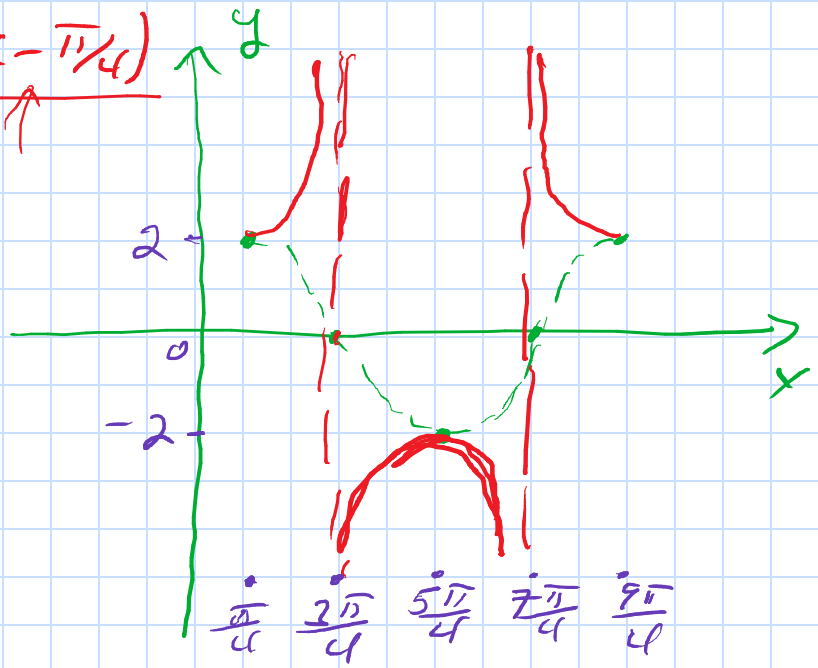


secant $\left(\frac{1}{\text{cosine}}\right)$ No Amplitude

Ex $y = 2\sec\left(x - \frac{\pi}{4}\right)$

$|A| =$ none $P = \frac{2\pi}{1} = 2\pi$ $\phi = \frac{\pi}{4}$ V.T.: $y = 0$

	x	$y = 2\cos(x - \pi/4)$
0 $+\frac{\pi}{4}$	$\frac{\pi}{4}$	2
$\frac{\pi}{2}$ $+\frac{\pi}{4}$	$\frac{3\pi}{4}$	0
π	$\frac{5\pi}{4}$	-2
$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	0
2π	$\frac{9\pi}{4}$	2



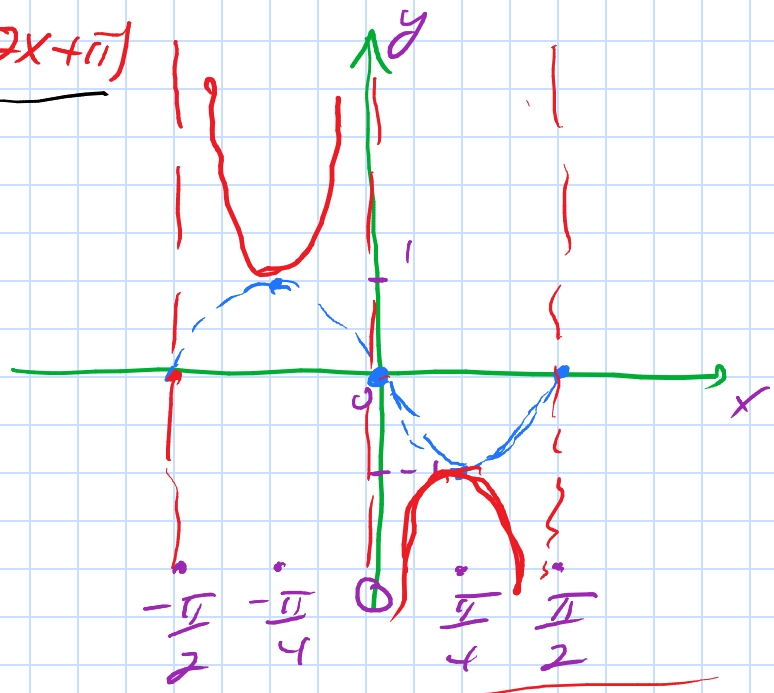
Cosecant $\left(\frac{1}{\sin e}\right)$ No Amplitude

$y = \csc(2x + \pi)$ (1 cycle)

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

$y = \sin(2x+\pi)$

		x	y
0	$-\frac{\pi}{2}$	$-\frac{\pi}{2}$	0
$\frac{\pi}{4}$	$-\frac{\pi}{2}$	$-\frac{\pi}{4}$	1
$\frac{\pi}{2}$		0	0
$\frac{3\pi}{4}$		$\frac{\pi}{4}$	-1
π		$\frac{\pi}{2}$	0

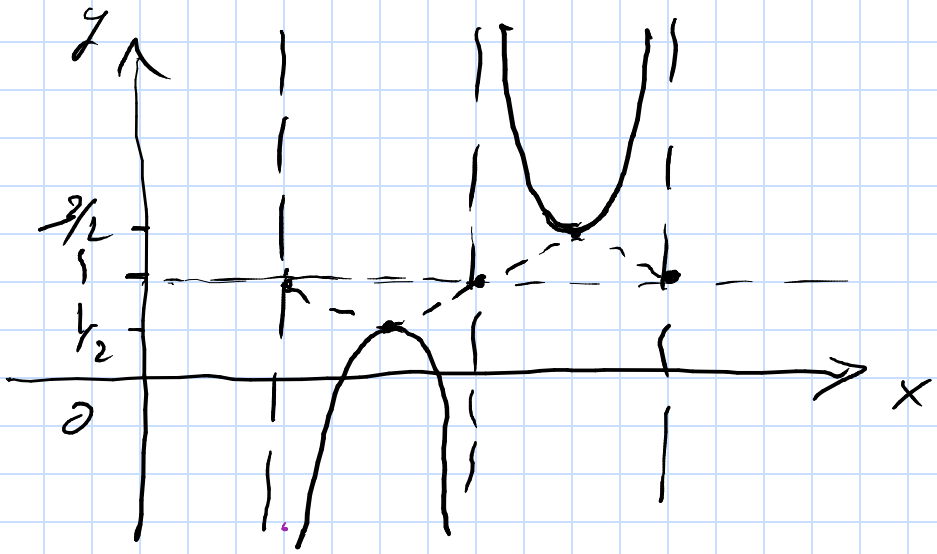


7/ $y = 1 - \frac{1}{2}\csc\left(x - \frac{3\pi}{4}\right)$ ✓ 1 cycle

$|A| = \text{inc}$ $P = \frac{2\pi}{1} = 2\pi$ $\phi = \frac{3\pi}{4}$ VT: $y = 1$

$y = 1 - \frac{1}{2}\sin\left(x - \frac{3\pi}{4}\right)$

	x		
$0 + \frac{3\pi}{4}$	$\frac{3\pi}{4}$	$0 + 1$	1
$\frac{\pi}{2} + \frac{3\pi}{4}$	$\frac{5\pi}{4}$	$-\frac{1}{2} + 1$	$\frac{1}{2}$
π	$\frac{7\pi}{4}$	$0 + 1$	1
$\frac{3\pi}{2}$	$\frac{9\pi}{4}$	$\frac{1}{2} + 1$	$3/2$
2π	$\frac{11\pi}{4}$	$0 + 1$	1



$\frac{3\pi}{4}$ $\frac{5\pi}{4}$ $\frac{7\pi}{4}$ $\frac{9\pi}{4}$ $\frac{11\pi}{4}$

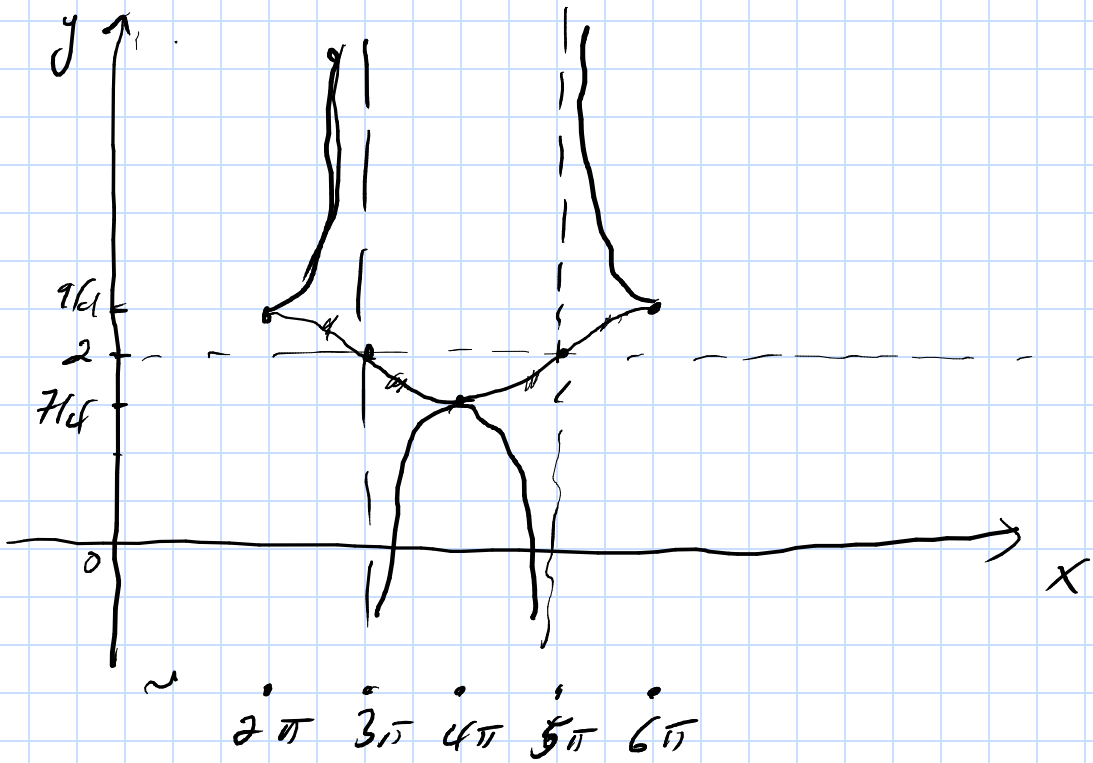
8/ $y = 2 + \frac{1}{4}\sec\left(\frac{1}{2}x - \pi\right)$ 1-cycle

$|A| =$ none $\quad P = \frac{2\pi}{1/2} = 4\pi \quad \phi = +\frac{\pi}{1/2} = 2\pi \quad$ V.T.: $y = 2$

	x	$y = 2 + \frac{1}{4}\cos\left(\frac{1}{2}x - \pi\right)$	
0 $+2\pi$	2π	$\frac{1}{4} + 2$	$9/4$
π $+2\pi$	3π	$0 + 2$	2
2π	4π	$-\frac{1}{4} + 2$	$7/4$
3π	5π	$0 + 2$	2
4π	6π	$\frac{1}{4} + 2$	$9/4$

} 7 pts

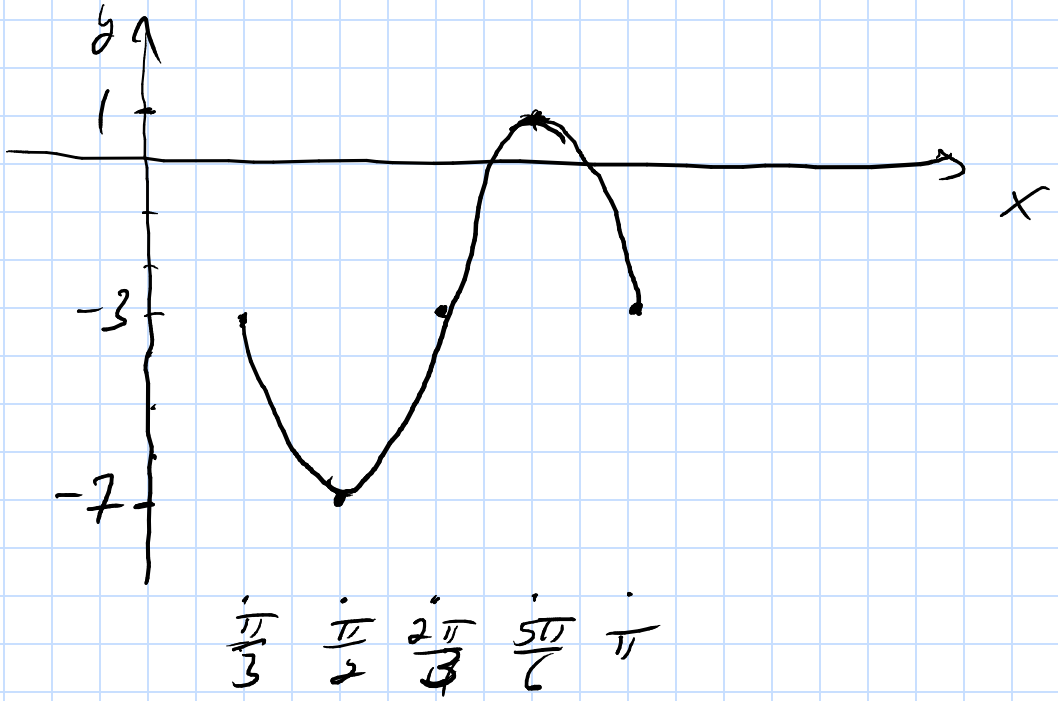
5 pts



$y = -4\sin(3x - \pi) - 3$ 1-cycle

$|A| = 4$ $P = \frac{2\pi}{3}$ $\phi = +\frac{\pi}{3}$ V.T: $y = -3$

	x	y	
$0 + \frac{\pi}{3}$	$\frac{\pi}{3}$	$0 - 3$	-3
$\frac{\pi}{6} + \frac{\pi}{3}$	$\frac{\pi}{2}$	$-4 - 3$	-7
$\frac{\pi}{3}$	$\frac{2\pi}{3}$	$0 - 3$	-3
$\frac{\pi}{2}$	$\frac{5\pi}{6}$	$4 - 3$	1
$\frac{2\pi}{3}$	π	$0 - 3$	-3



$y = 5\cos(x + 3\pi) - 2$ 1-cycle

$|A| = 5$ $T = 2\pi$ $\phi = -3\pi$ VT: $y = -2$

	x	y	
0 -3π	-3π	$5 - 2$	3
$\frac{\pi}{2}$ -3π	$-\frac{5\pi}{2}$	$0 - 2$	-2
π	-2π	$-5 - 2$	-7
$\frac{3\pi}{2}$	$-\frac{3\pi}{2}$	$0 - 2$	-2
2π	$-\pi$	$5 - 2$	3