

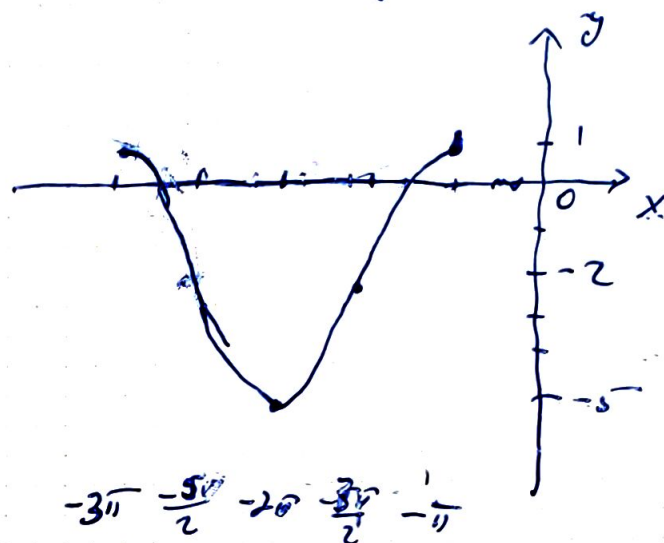
Review Exam 3

Amplitude, Period, Phase shift, Vertical Translation
table, graph (label) 1 cycle

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

$$|A| = 3 \quad P = 2\pi \quad \phi = -3\pi \quad V.T.: y = -2$$

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

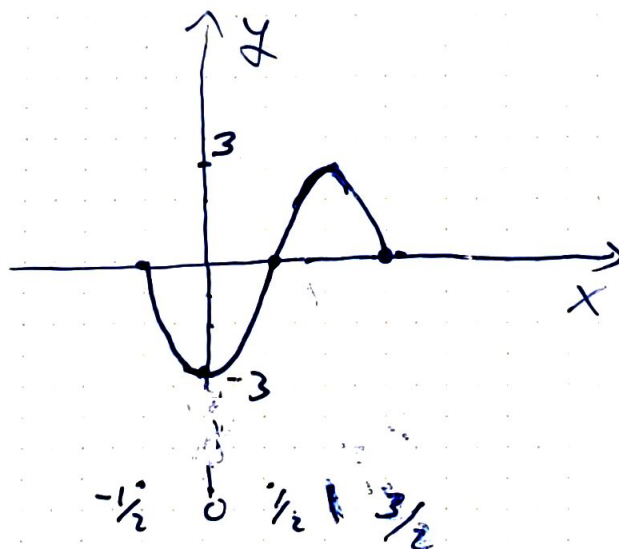


$$y = -3 \sin(\pi x + \frac{\pi}{2})$$

$$|A| = 3 \quad P = \frac{2\pi}{\pi} = 2 \quad \phi = -\frac{\pi}{2} \cdot \frac{1}{\pi} = -\frac{1}{2}$$

$$V.T.: y = 0$$

	X	y
0	$-\frac{1}{2}$	0
$\frac{1}{2}$	0	-3
1	$\frac{1}{2}$	0
$\frac{3}{2}$	1	3
2	$\frac{3}{2}$	0



$$y = A \operatorname{Trig}(Bx + C) + D$$

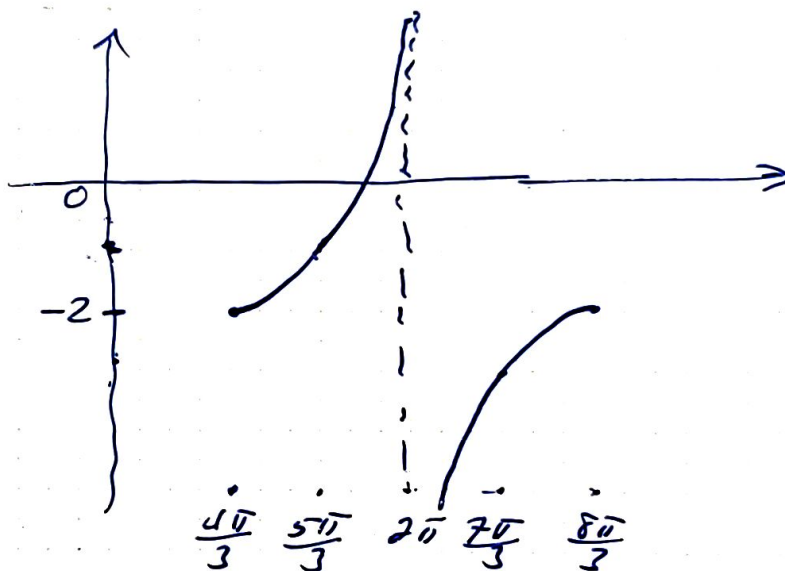
$$y = \frac{2}{3} \tan\left(\frac{3}{4}x - \pi\right) - 2$$

$$|A| = n/a \quad P = \frac{\pi}{3} = \frac{4\pi}{3} \quad \varphi = -\frac{(-\pi)}{\frac{3}{4}} = \frac{4}{3}\pi$$

$$VT: y = -2$$

$$(1, 0)$$

	X	y	
$0 + \frac{4}{3}\pi$	$\frac{4\pi}{3}$	$0 - 2$	-2
$\frac{\pi}{3} + \frac{4}{3}\pi$	$\frac{5\pi}{3}$	$\frac{2}{3} - 2$	$-\frac{4}{3}$
$\frac{2\pi}{3}$	2π	∞	∞
π	$\frac{7\pi}{3}$	$-\frac{2}{3} - 2$	$-\frac{8}{3}$
$\frac{4\pi}{3}$	$\frac{8\pi}{3}$	$0 - 2$	-2



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

$$|A| = n/a$$

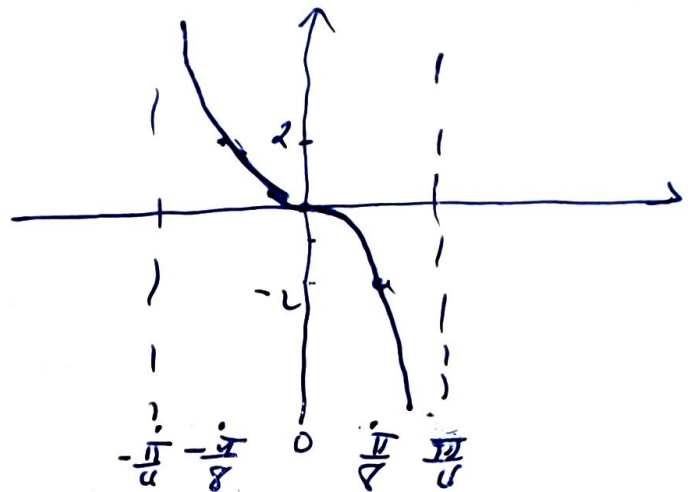
$$P = \frac{\pi}{2}$$

$$\varphi = -\frac{\pi}{2} \cdot \frac{1}{2}$$

$$V.T: y = 0$$

$$= -\frac{\pi}{4}$$

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



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

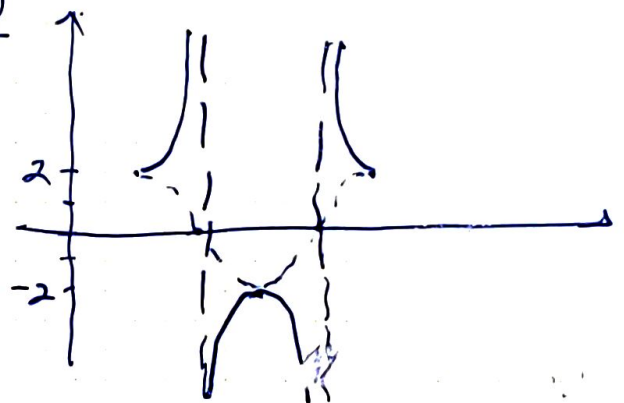
$$|A| = n/a$$

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

$$\varphi = +\frac{\pi}{2} \cdot \frac{1}{2} = \frac{\pi}{4}$$

$$V.T: y = 0$$

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

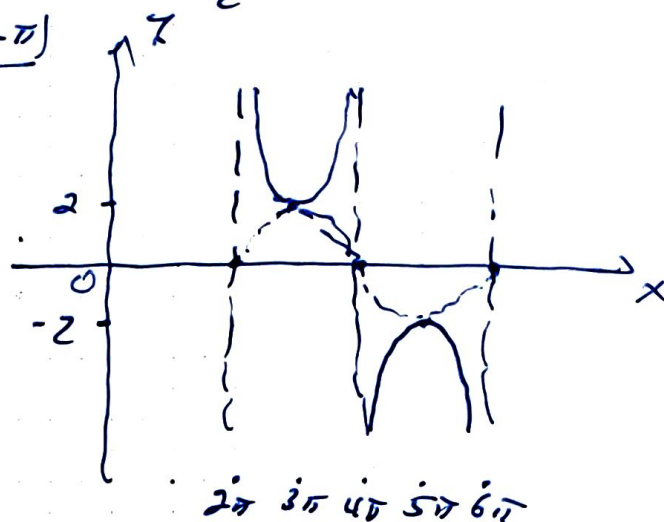


$$\frac{\pi}{4} \quad \frac{\pi}{2} \quad \frac{3\pi}{4} \quad \pi \quad \frac{5\pi}{4}$$

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

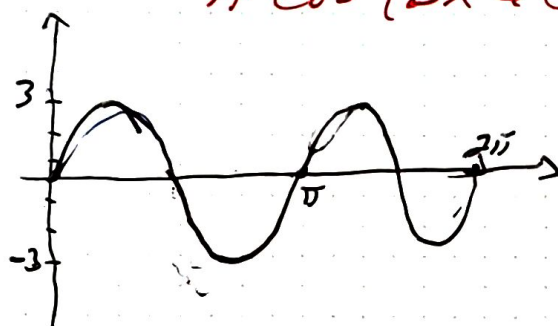
$$|A| = n/a \quad P = \frac{2\pi}{\frac{1}{2}} = 4\pi \quad \varphi = -\frac{-\pi}{\frac{1}{2}} = 2\pi \quad \text{V! } y=0$$

	X	$y = 2 \sin\left(\frac{1}{2}x - \pi\right)$
$0 + 2\pi$	2π	0
$\pi + 2\pi$	3π	2
2π	4π	0
3π	5π	-2
4π	6π	0



$$y = A \sin(Bx + C) + D$$

$$A \cos(Bx + C) + D$$



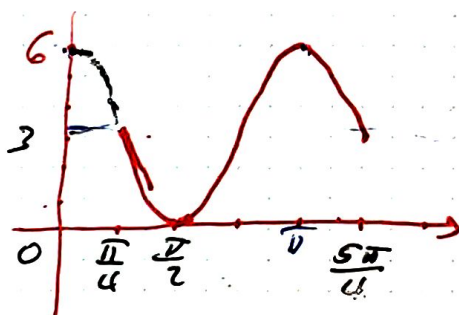
$$|A| = 3, D = 0$$

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

$$B = 2$$

$$\varphi = 0 \Rightarrow C = 0$$

$$y = 3 \sin(2x) \quad 0 \leq x \leq 2\pi$$



$$|A| = 3$$

$$\varphi = 0 \Rightarrow C = 0$$

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

$$D = 3$$

$$y = 3 \cos 2x + 3 \quad \frac{\pi}{4} \leq x \leq \frac{5\pi}{4}$$

$$\varphi = \frac{\pi}{4} = -\frac{C}{B} \Rightarrow C = -\frac{2\pi}{4} = -\frac{\pi}{2}$$

$$y = -3 \sin\left(2x - \frac{\pi}{2}\right) + 3 \quad \left[\frac{\pi}{4} \leq x \leq \frac{5\pi}{4}\right]$$