

Exam 3 Review Graphing

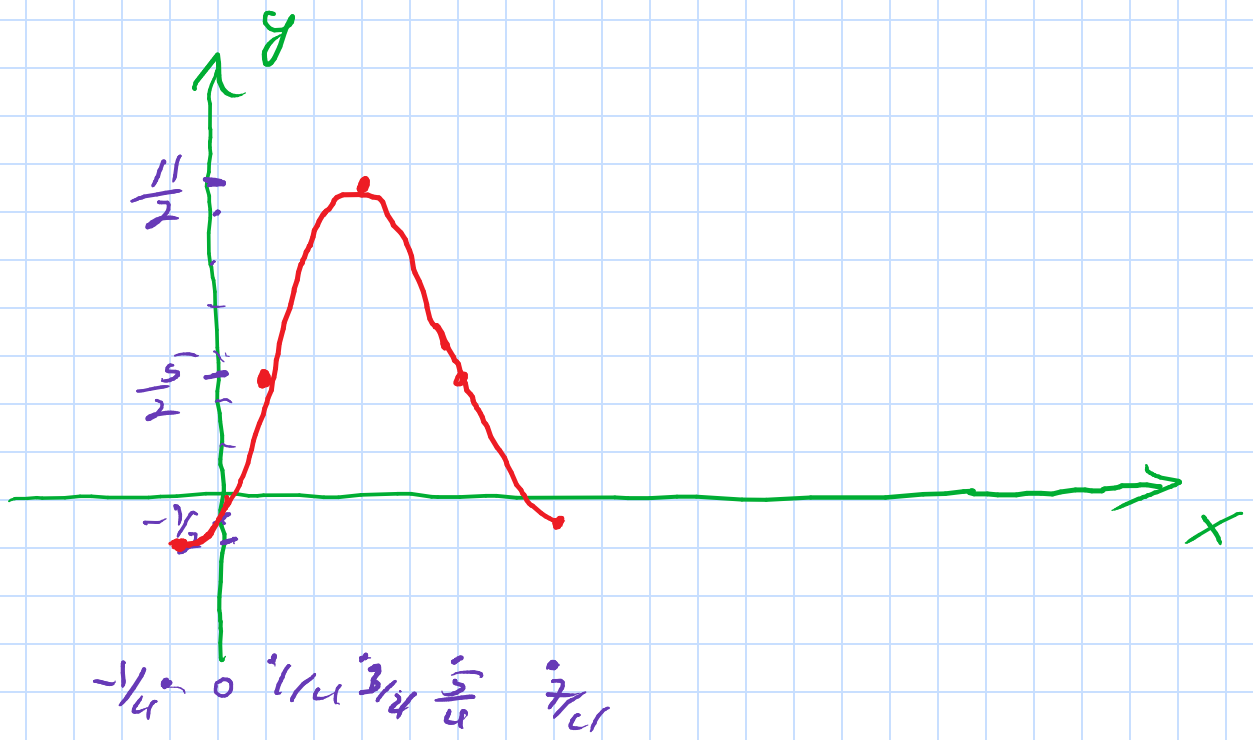
Find the Amplitude, Period, phase shift, vertical Translation, and Table. Then Graph & label. 1-cycle

$$1/ \quad y = \frac{5}{2} - 3\cos\left(\pi x + \frac{\pi}{4}\right)$$

$$|A| = 3 \quad P = \frac{2\pi}{B} = \frac{2\pi}{\pi} = 2 \quad \phi = -\frac{C}{B} = -\frac{1}{4}$$

$$V.T.: y = \frac{5}{2}$$

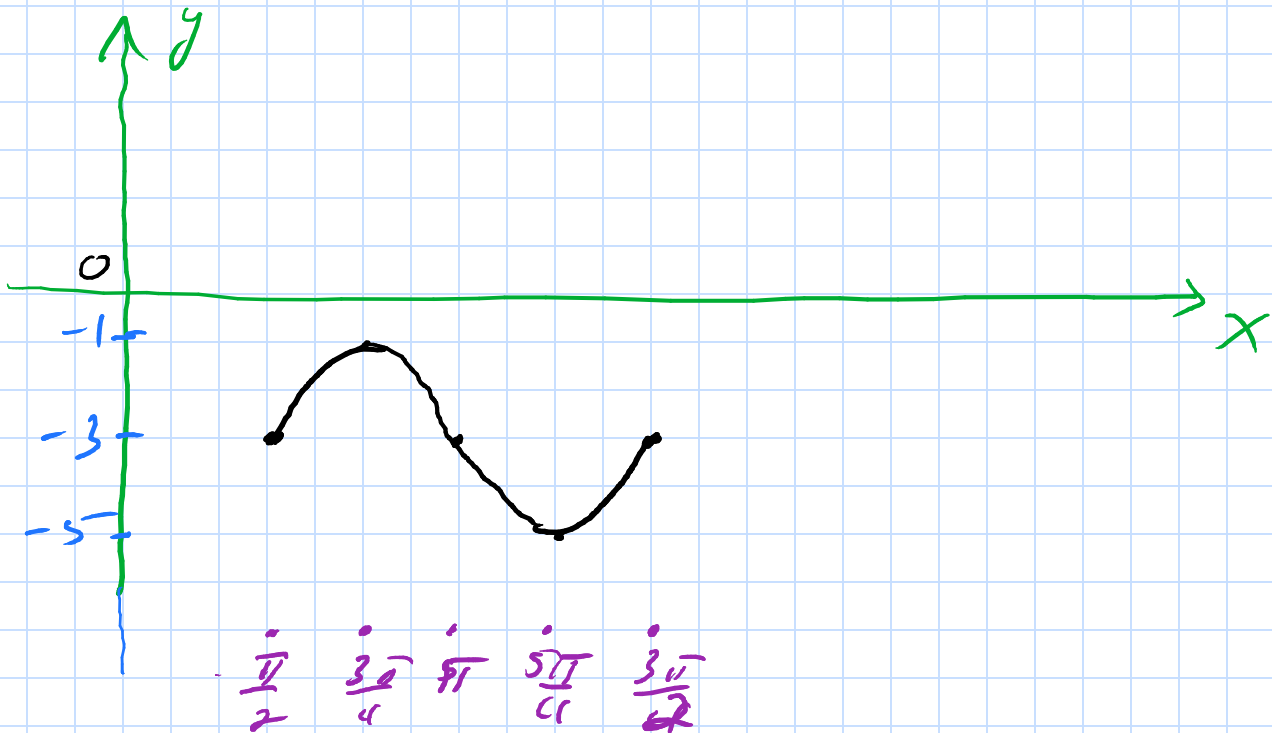
		X		y
0	$-\frac{1}{4}$	$-\frac{1}{4}$	$-3 + \frac{5}{2}$	$-\frac{1}{2}$
$\frac{1}{2}$	$-\frac{1}{4}$	$\frac{1}{4}$	$0 + \frac{5}{2}$	$\frac{5}{2}$
1		$\frac{3}{4}$	$3 + \frac{5}{2}$	$\frac{11}{2}$
$\frac{3}{2}$		$\frac{5}{4}$	$0 + \frac{5}{2}$	$\frac{5}{2}$
2		$\frac{7}{4}$	$-3 + \frac{5}{2}$	$-\frac{1}{2}$



$$2/ \quad y = 2 \sin(2x - \pi) - 3$$

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

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

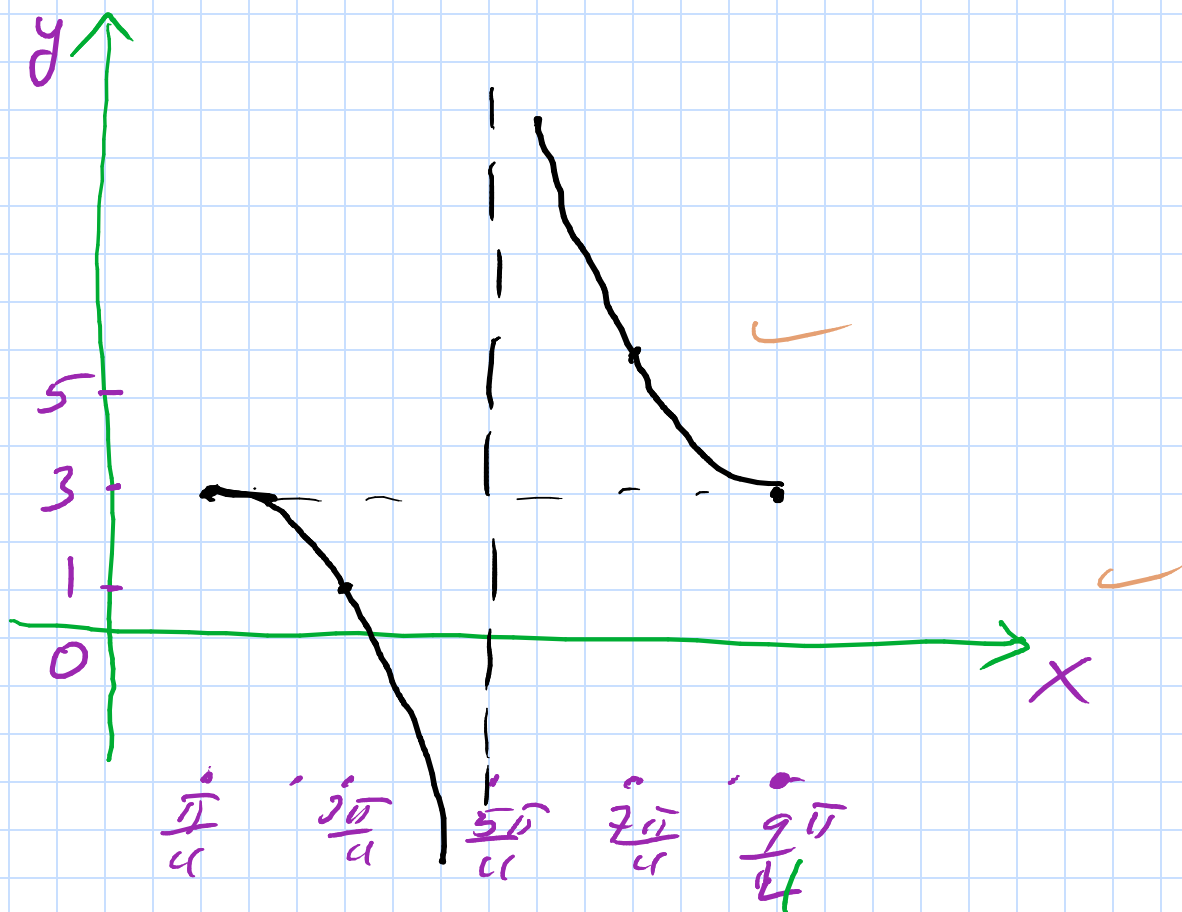


$$3/ \quad y = 3 - 2 \tan\left(\frac{x}{2} - \frac{\pi}{8}\right)$$

$$|A| = n a_{\text{none}} \quad P = \frac{\pi}{\frac{1}{2}} = 2\pi \quad \phi = +\frac{\pi}{8} \cdot 2 = \frac{\pi}{4}$$

$$V.T.: y = 3$$

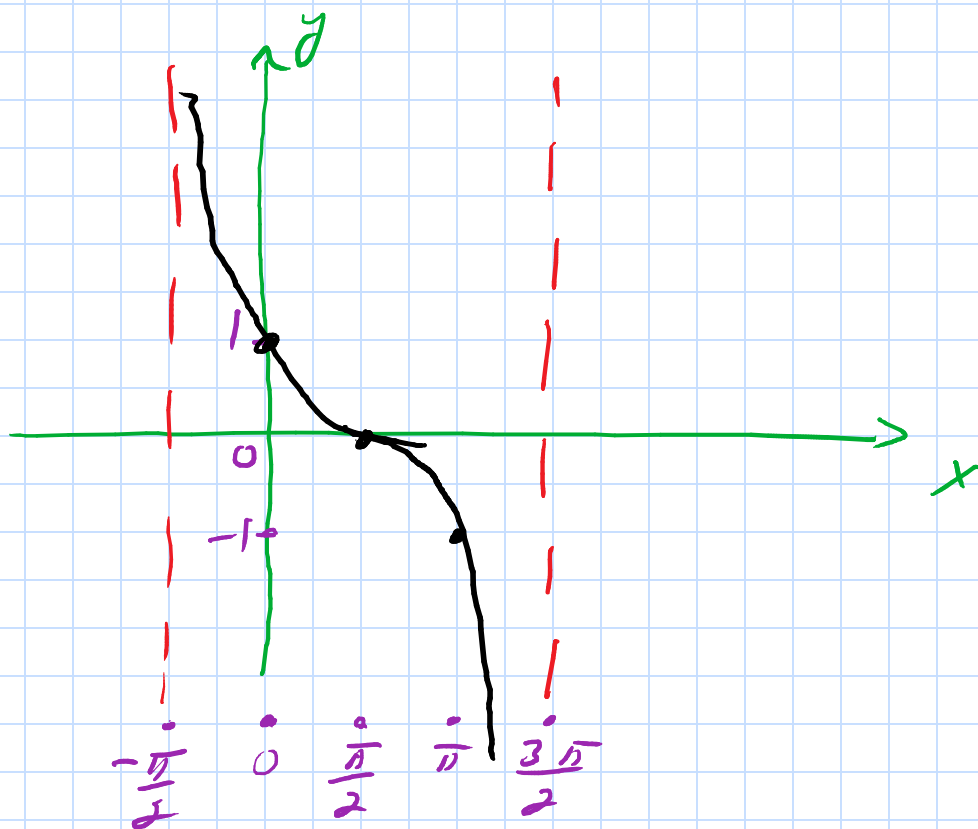
	X		y
$0 + \frac{\pi}{4}$	$\frac{\pi}{4}$	$0 + 3$	3
$\frac{\pi}{2} + \frac{\pi}{4}$	$\frac{3\pi}{4}$	$-2 + 3$	1
π	$\frac{5\pi}{4}$	∞	∞
$\frac{3\pi}{2}$	$\frac{7\pi}{4}$	$2 + 3$	5
2π	$\frac{9\pi}{4}$	$0 + 3$	3



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

$|A| = nmc$ $P = 2\pi$ $\phi = -\frac{\pi}{2}$ V.T.: $y = 0$

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

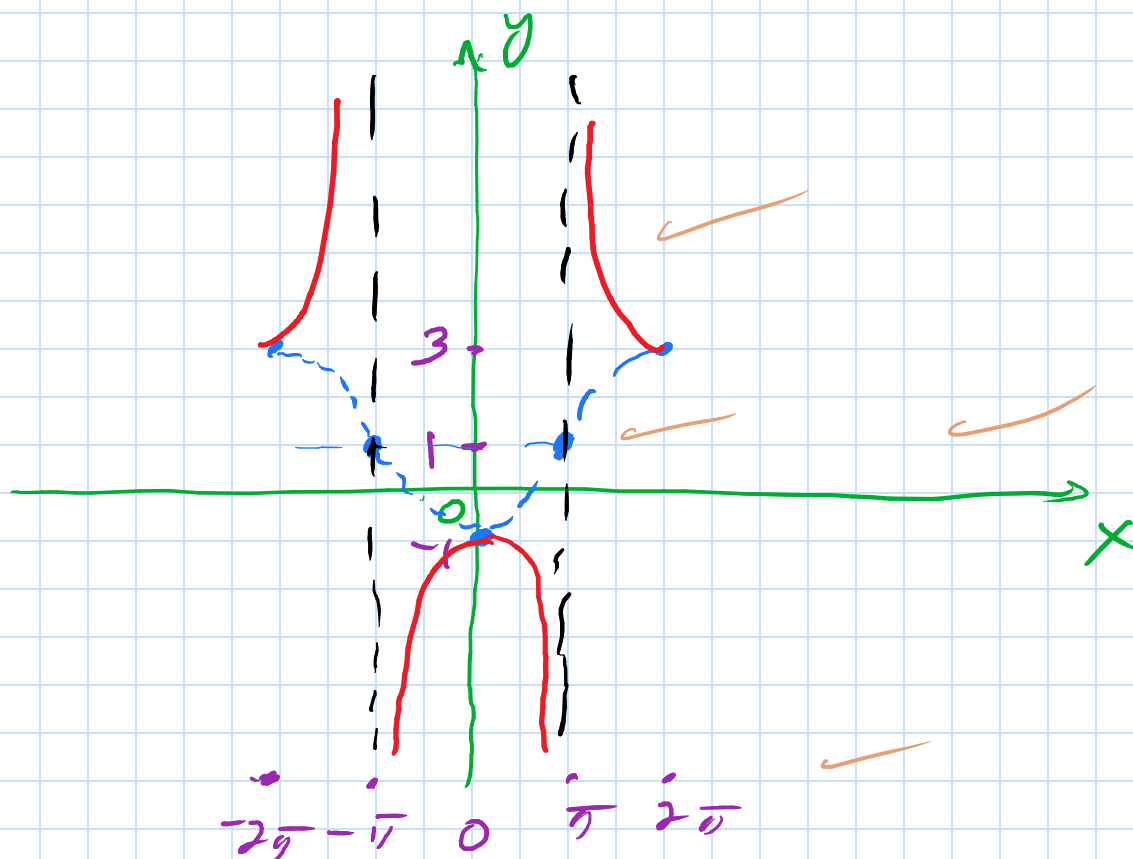


5/ $y = 2 \sec\left(\frac{1}{2}x + \pi\right) + 1$ ✓

$|A| = na$ ✓ $P = \frac{2\pi}{\frac{1}{2}} = 4\pi$ ✓ $\phi = -2\pi$ ✓ V. r: $y = 1$ ✓

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

	X			
0	-2π	-2π	$2 + 1$	3
π	-2π	$-\pi$	$0 + 1$	1
2π		0	$-2 + 1$	-1
3π		π	$0 + 1$	1
4π		2π	$2 + 1$	3



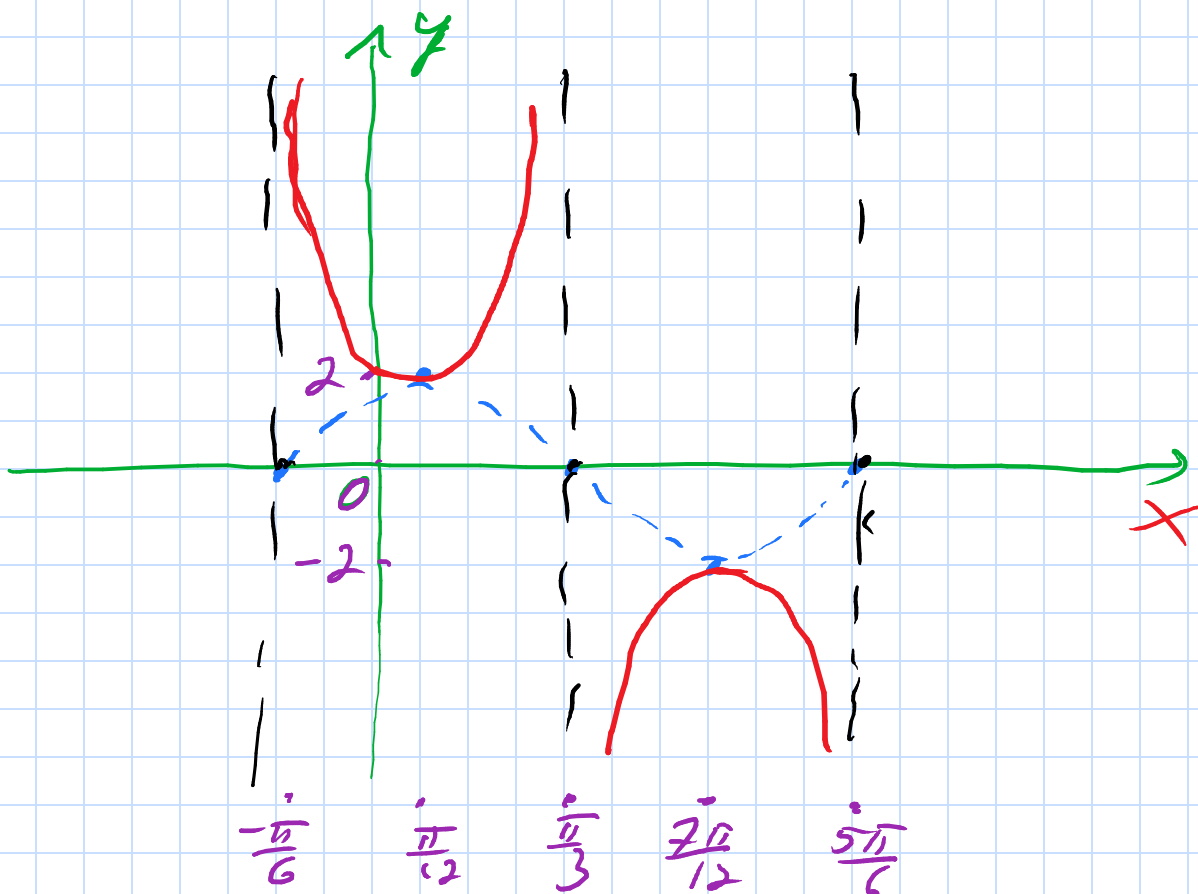
$$6/ \quad y = 2 \csc\left(2x + \frac{\pi}{3}\right)$$

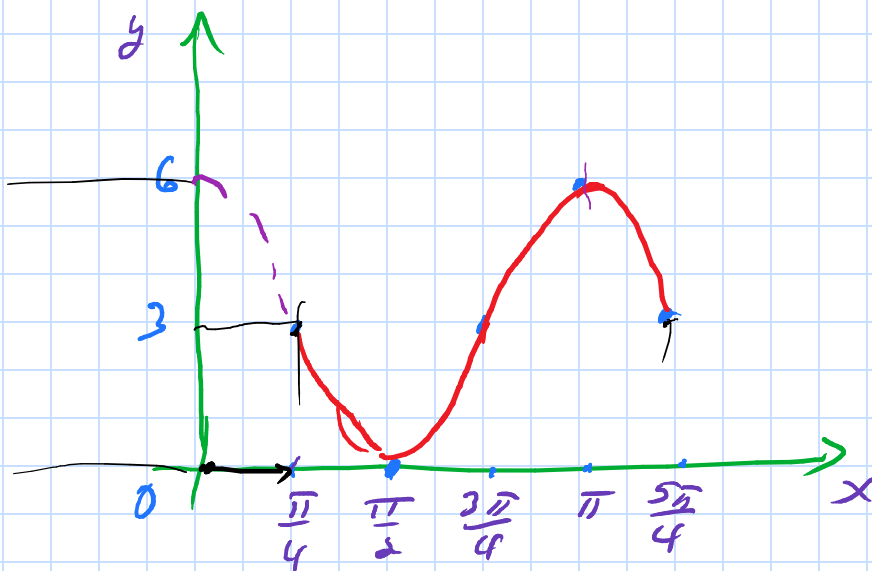
$$|A| = na \quad P = \frac{2\pi}{2} = \pi \quad \phi = -\frac{\pi}{3} \cdot \frac{1}{2} = -\frac{\pi}{6}$$

$$V.T: y = 0$$

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

	x	
$0 - \frac{\pi}{6}$	$-\frac{\pi}{6}$	0
$\frac{\pi}{4} - \frac{\pi}{6}$	$\frac{\pi}{12}$	2
$\frac{\pi}{2}$	$\frac{\pi}{3}$	0
$\frac{3\pi}{4}$	$\frac{7\pi}{12}$	-2
π	$\frac{5\pi}{6}$	0





$$|A| = 3 \quad \checkmark$$

$$P = \frac{2\pi}{B} = \left(\frac{5}{4} - \frac{1}{4}\right)\pi = \pi \quad \checkmark$$

$$\underline{B = 2}$$

$$\phi = -\frac{C}{B} = \frac{\pi}{4} \quad \checkmark$$

$$\underline{C = -\frac{\pi}{2}} \quad \checkmark$$

$$D = 3 \quad \text{V.T.} \quad \checkmark$$

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

$$\frac{\pi}{4} \leq x \leq \frac{5\pi}{4}$$

$$\underline{\phi = 0 = C}$$

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

$$|A| = 3$$

$$D = 3$$

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

$$\frac{\pi}{4} \leq x \leq \frac{5\pi}{4}$$