

Graphing Trig Functions by Hand

Determine the amplitude, period, phase shift and vertical translation for the following equation

$$y = 5 \sin(4\theta - 60^\circ) + 2$$

* "b" must be outside of the brackets!

$$y = 5 \sin 4(\theta - 15^\circ) + 2$$

Amp: 5

Period: $\frac{360}{4} = 90^\circ$

P.S.: 15° right

VD: up 2.

	A	P	$P.S.$	$V.D.:$
a)	3	4π	$\pi/2$ right	\emptyset
c)	$y = 1 \sin 4 \left(\theta - \frac{\pi}{8} \right)$			
e)	1	$\pi/2$	$\pi/8$ right	\emptyset
	2	120°	45° right	4 up
g)	$y = 7 \sin \frac{1}{4} \left(\theta + 80 \right)^\circ - 1$			
	7	1440°	80° left	1 down

$$y = 7 \sin \underline{6} (\theta - \underline{\underline{70}}) + 2$$

Amp: 7

Period: $\frac{360}{6} = \underline{\underline{60}}^\circ$

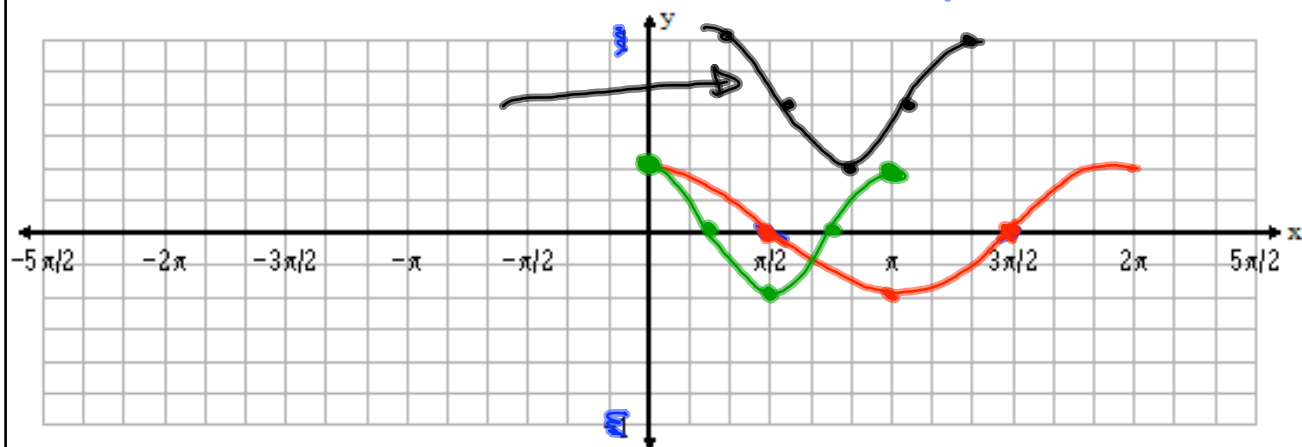
P.S.: 70° right

VD: 2 up

Graph the following:

$$y = 2 \cos 2 \left(\theta - \frac{\pi}{3} \right) + 4$$

Amp: 2
Period: $\frac{2\pi}{2} = \pi$
P.S.: $\frac{\pi}{3}$ right
V.D.: 4 up.



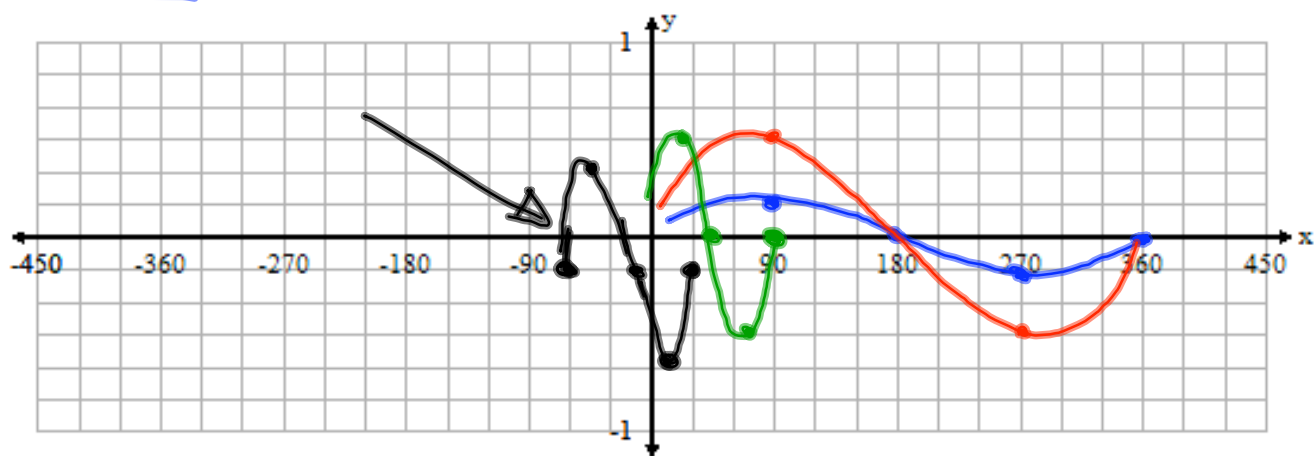
$$y = 3 \sin 4(\theta + 60^\circ) - 1$$

$$\underline{A}: 3$$

$$\underline{P}: \frac{360}{4} = 90^\circ$$

$$\underline{P.S.}: 60^\circ \text{ left}$$

$$\underline{V.D.}: 1 \text{ down.}$$



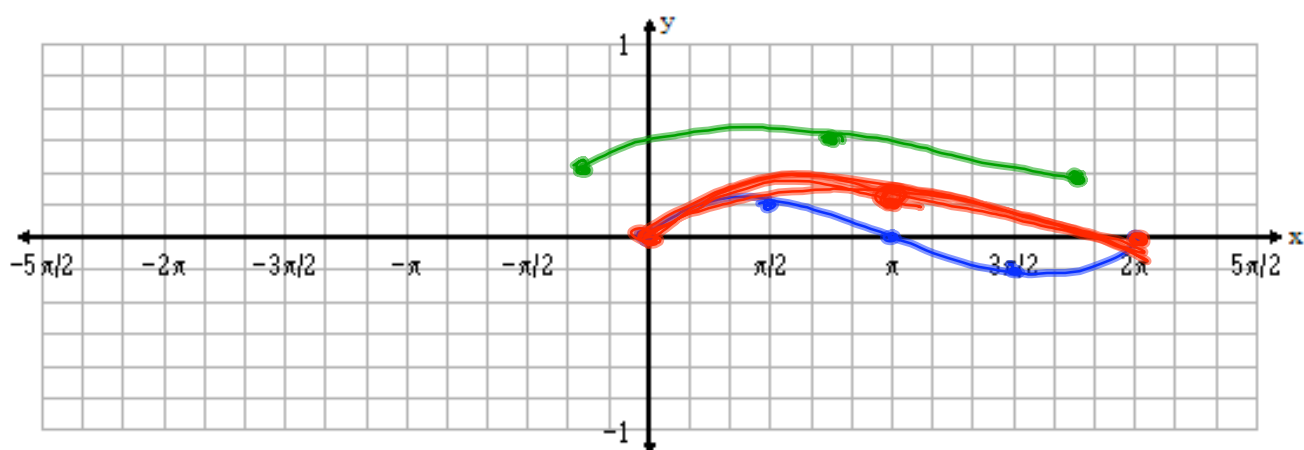
$$y = \sin \frac{1}{2} \left(\theta + \frac{\pi}{4} \right) + 2$$

Amp: 1

Period: 4π

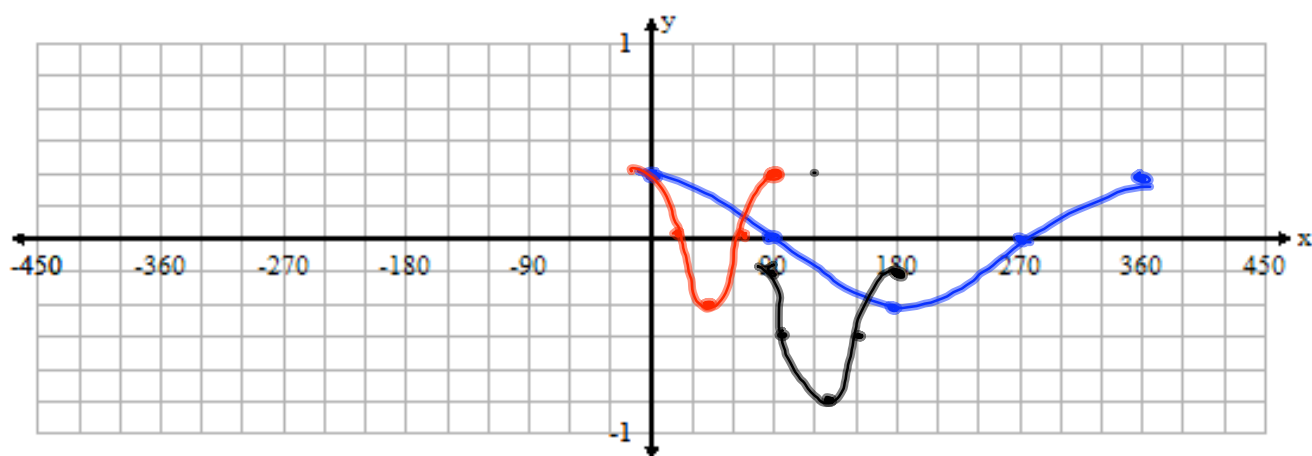
P.S.: $\pi/4$ left

VD: 2 up



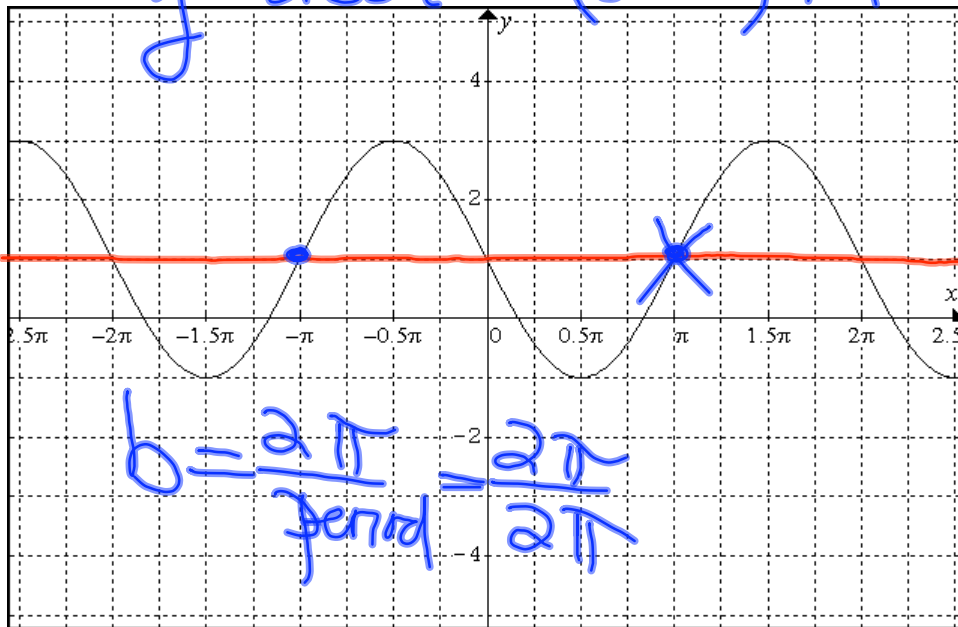
$$y = 2 \cos 4(\theta - 90^\circ) - 3$$

$$2 \cos 4(\theta - 90^\circ) - 3$$



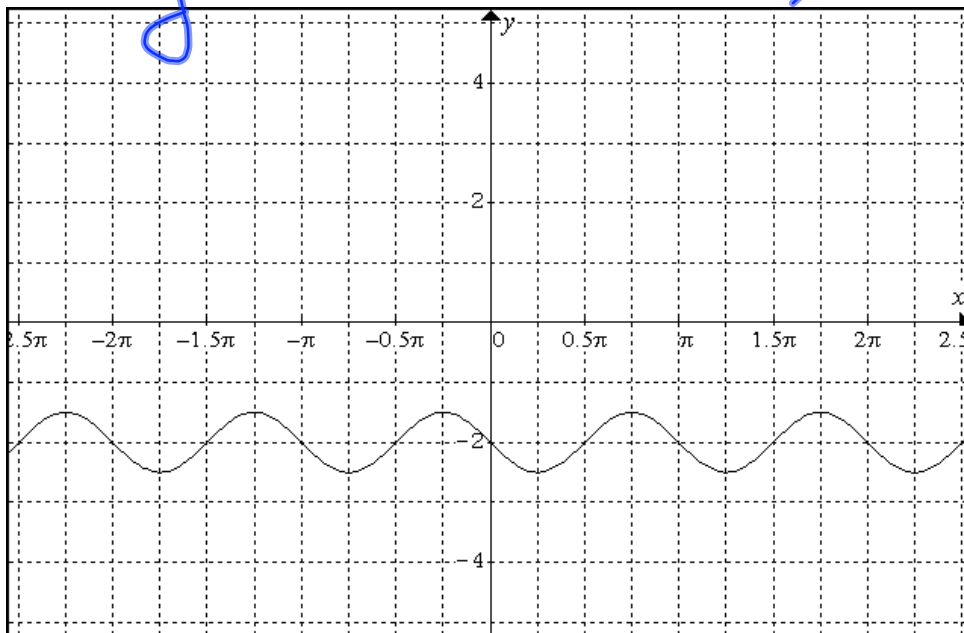
Determine the equation of the sine function

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



$A: \frac{3 - (-1)}{2} \textcircled{2}$
 $P: 2\pi$
 $P.S. \pi \text{ right}$
 $VD: \frac{3 + (-1)}{2}$
 $\textcircled{1}$

$$y = 0.5 \sin 2 \left(\theta - \frac{\pi}{2} \right) - 2$$



$A: \frac{-1.5 - (-2.5)}{2} \textcircled{0.5}$
 $P: \pi$
 $P.S. \frac{\pi}{2} \text{ right}$
 $VD: \frac{-1.5 + (-2.5)}{2}$
 $\textcircled{-2}$

$$y = 2 \sin(\theta) - 2$$

Range:

$$VD + \text{Amp}$$

$$(-2) + 2 = 0$$

$$VD - \text{Amp}$$

$$(-2) - 2 = -4$$

$$\underline{-4 \leq y \leq 0}$$