http://www.intmath.com/Trigonometric-graphs/3_Graphs-sin-cos-phase-shift.php

10.3 Graphs of y = a sin (bx+c) and y = a cos (bx+c)

1. Amplitude = $|a|$

2. Period : the period is the x-distance between a point and the next corresponding point for which the value of y repeats.
Period = $2\frac{\pi}{b}$

3. Displacement:(or phase shift) $-\frac{c}{b}$

is the amount that the curve is moved in a horizontal direction from its normal position.

The displacement will be to the **right** if the phase angle is negative, and to the **left** if the phase angle is positive.

c>0 shift left *c<0 shift right*

1. $y = \sin(2x + \pi/6)$

$a = 1$

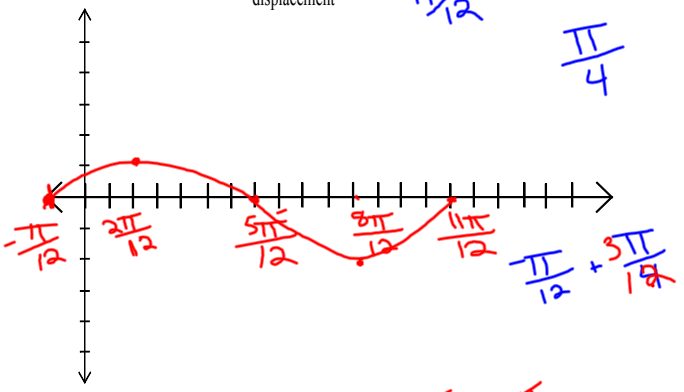
period = π

displacement = $-\frac{\pi}{12}$

$\frac{-\pi/6}{2}$

$\frac{-\pi}{6} \cdot \frac{1}{2}$

$\frac{\pi}{4}$



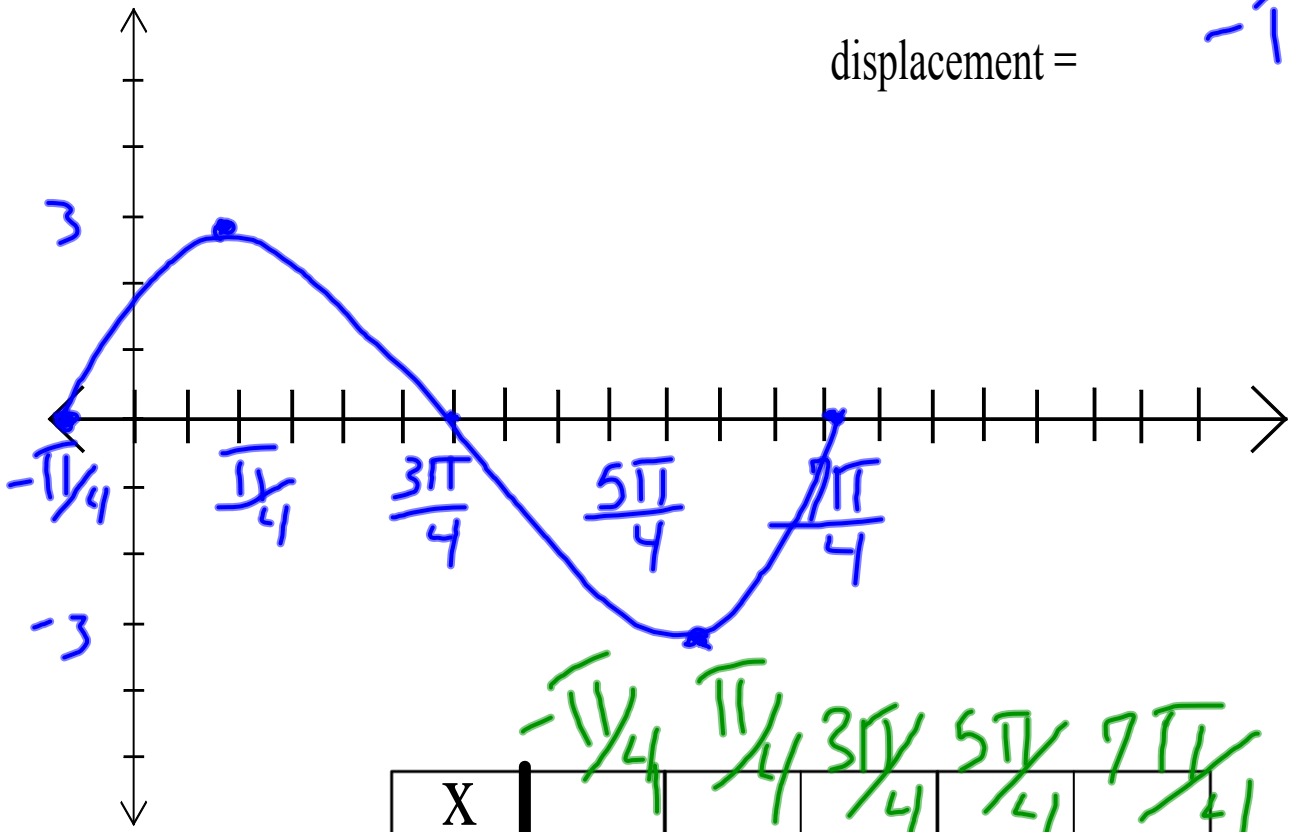
sin	$\frac{-\pi}{12}$	$\frac{2\pi}{12}$	$\frac{5\pi}{12}$	$\frac{8\pi}{12}$	$\frac{11\pi}{12}$
x					
y	0	1	0	-1	0

2. $y = 3\sin(\quad x + \pi/4)$

$a =$ 3

period = 2π

displacement = $-\pi/4$



x	$-\pi/4$	$\pi/4$	$3\pi/4$	$5\pi/4$	$7\pi/4$
y	0	3	0	-3	0

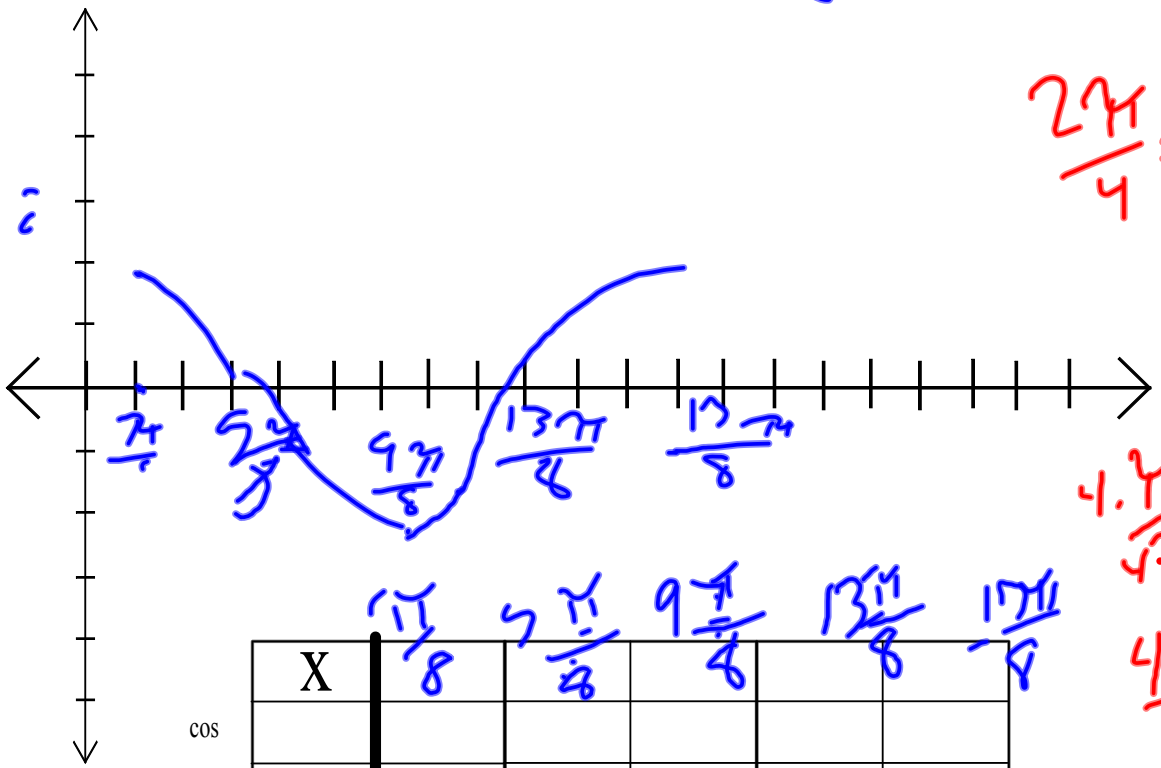
sin

3. $y = 2\cos(\quad x - \pi/8)$

$a =$ 2

period = 2π

displacement = $\frac{\pi}{8}$



$\frac{2\pi}{4} = \frac{\pi}{2}$

$4 \cdot \frac{\pi}{2} + \frac{\pi}{8}$

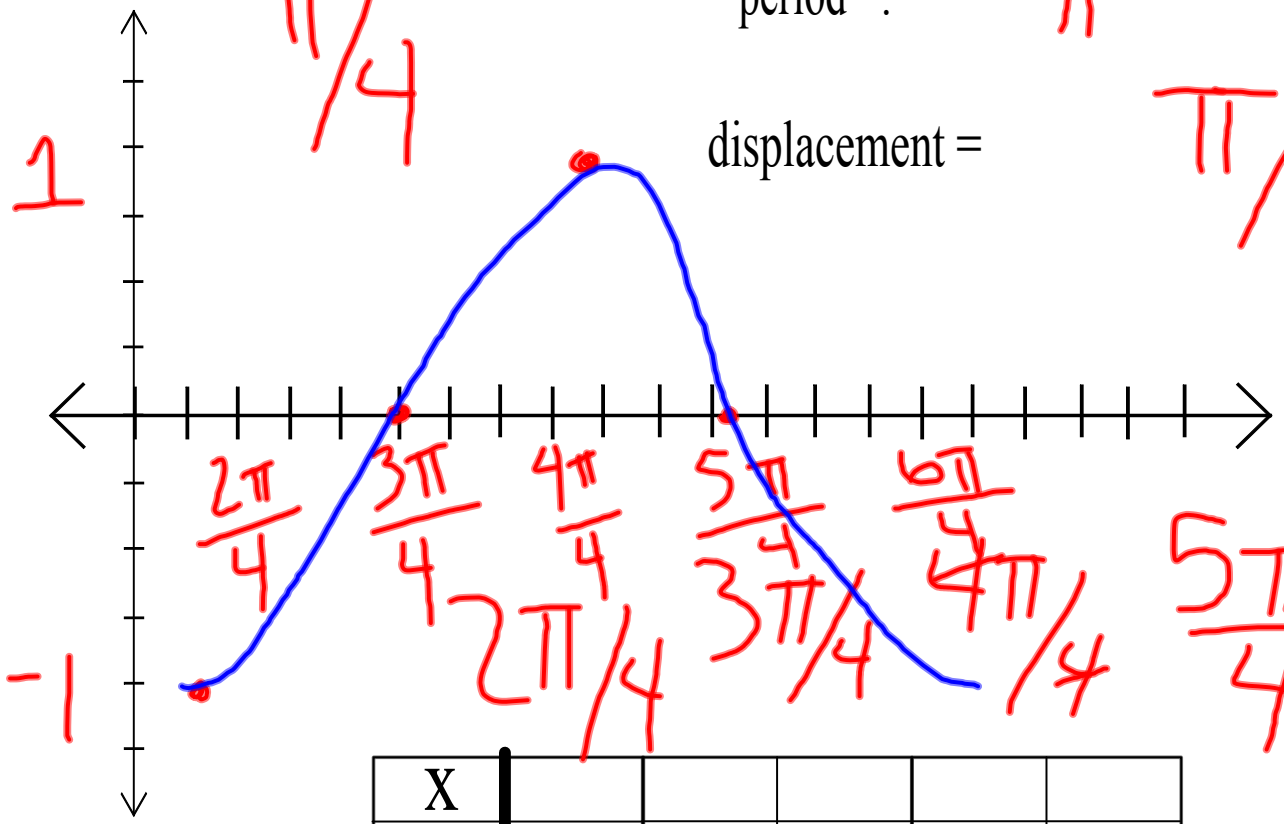
$\frac{4\pi}{8} + \frac{\pi}{4}$

x	$\frac{\pi}{8}$	$\frac{5\pi}{8}$	$\frac{9\pi}{8}$	$\frac{13\pi}{8}$	$\frac{17\pi}{8}$
cos					
y	2	0	-2	0	2

4. $y = -\cos(2 \quad x - \pi)$ $a =$ 1

period =. π

displacement = $\pi/2$



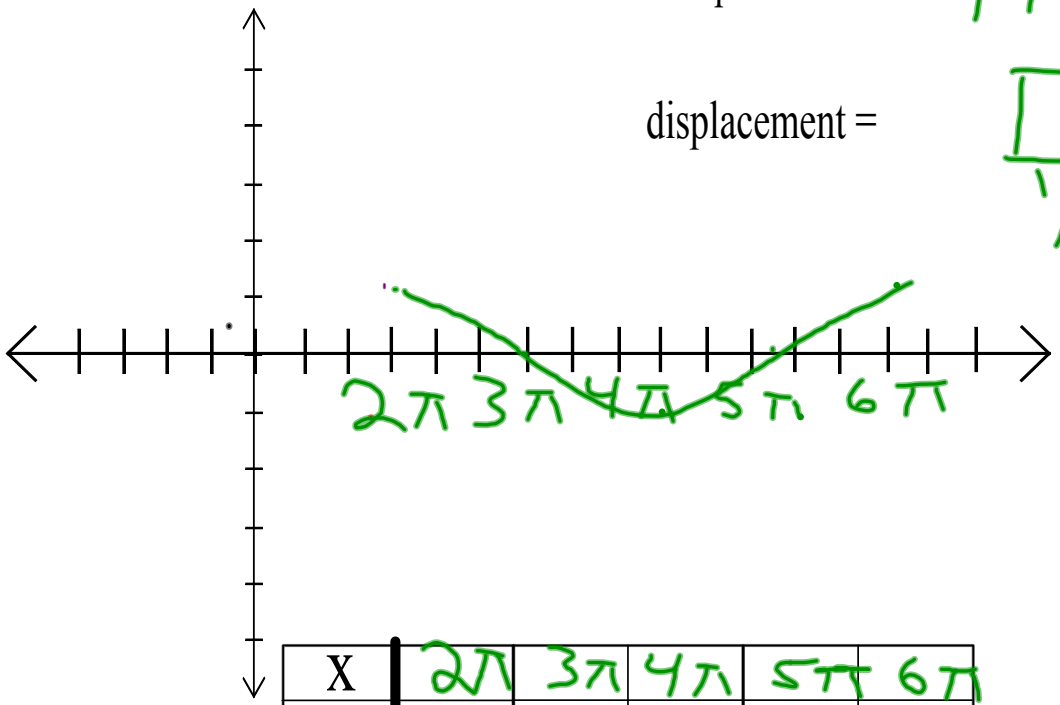
cos

x					
y	-1	0	1	0	-1

5. $y = \cos((1/2) \quad x - \pi) \quad a =$ 1

period = 4π

displacement = $\frac{\pi}{1/2} = 2\pi$



cos

x	2π	3π	4π	5π	6π
y	1	0	-1	0	1.

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

#27) sin, 4, 3π, $-\frac{\pi}{4}$

$y = 4\sin\left(\frac{2}{3}x + \frac{\pi}{6}\right)$

$\frac{2\pi}{b} = \frac{3\pi}{1}$

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

$\frac{2\pi}{3\pi} = b$

$\frac{c}{2} = \frac{-\pi}{4} \cdot \frac{2}{3}$

$+c = +\frac{2\pi}{12}$

#28

Crim did this

Cos, 3, $2\pi/3$, $\pi/3$

$y = 8\cos(3x - \pi)$

$\frac{2\pi}{b} = \frac{2\pi}{3}$

$-\frac{c}{3} = \pi/3$