Trigonometry Name Key

WKS – Graphing Sine & Cosine Date Hour

1. Consider the function: $y = \frac{-1}{2}\cos\left(3x - \frac{\pi}{2}\right) + 2$ (A, B, C, D) $\frac{\pi}{2} \div 3 = \frac{\pi}{2} \cdot \frac{1}{3}$

The amplitude is $1/2$ The phase shift is $\pi/6$ units up down left (right)

The period is $2\pi/3$ $\frac{2\pi}{3}$ The vertical shift is 2 (units) up down left right

2. For $y = -6\sin 2(4x + \pi) + 3$

Write the equation in standard form $y = -6\sin(8x + 2\pi) + 3$

The amplitude is 6 The phase shift is $-\frac{\pi}{4}$ units up down (left) right

The period is $\frac{\pi}{4}$ $\frac{2\pi}{8}$ The vertical shift is 3 units (up) down left right

3. For $y = a\sin(bx - c) + d$ give a complete description of the translation that occurs based upon

a vertical stretch/comp by a

b changes the period (horiz Stretch/comp)

c Changes the starting point (horiz. Shift)

d Vertical shift

For each of the following, **graph the basic function, either $y = \sin x$ or $y = \cos x$** and then graph one complete cycle of the following functions.

4. Sketch the graph of $y = \frac{-1}{2}\cos(3x - 0)$

The amplitude is $1/2$

The phase (C/B) shift is 0 units ~~up down left right~~

The period is $2\pi/3$ $\frac{2\pi}{12} = \frac{\pi}{6}$ ¢ P/4

The vertical shift is 0 units ~~up down left right~~

Graph on the back!

5. Sketch the graph of $y = 2\sin(x - 1)$ (A, B, C, D)

The amplitude is 2

The phase shift is 0 units up ~~down~~ left right

The period is 2π

The vertical shift is 1 units up (down) left right

Graph on the back!

7. Sketch the graph of $y = \cos 2(x - \pi)$ $\cos(2x - 2\pi)$

The amplitude is 1

The phase shift is π units up down left (right)

The period is π

The vertical shift is 0 units ~~up down left right~~

Graph on the back!

8. Sketch the graph of $y = 2\sin(\frac{1}{2}x + \frac{\pi}{2}) - 1$ $-\frac{\pi}{2} \div \frac{1}{2}$

The amplitude is 2

The phase shift is $-\pi$ units up down (left) right

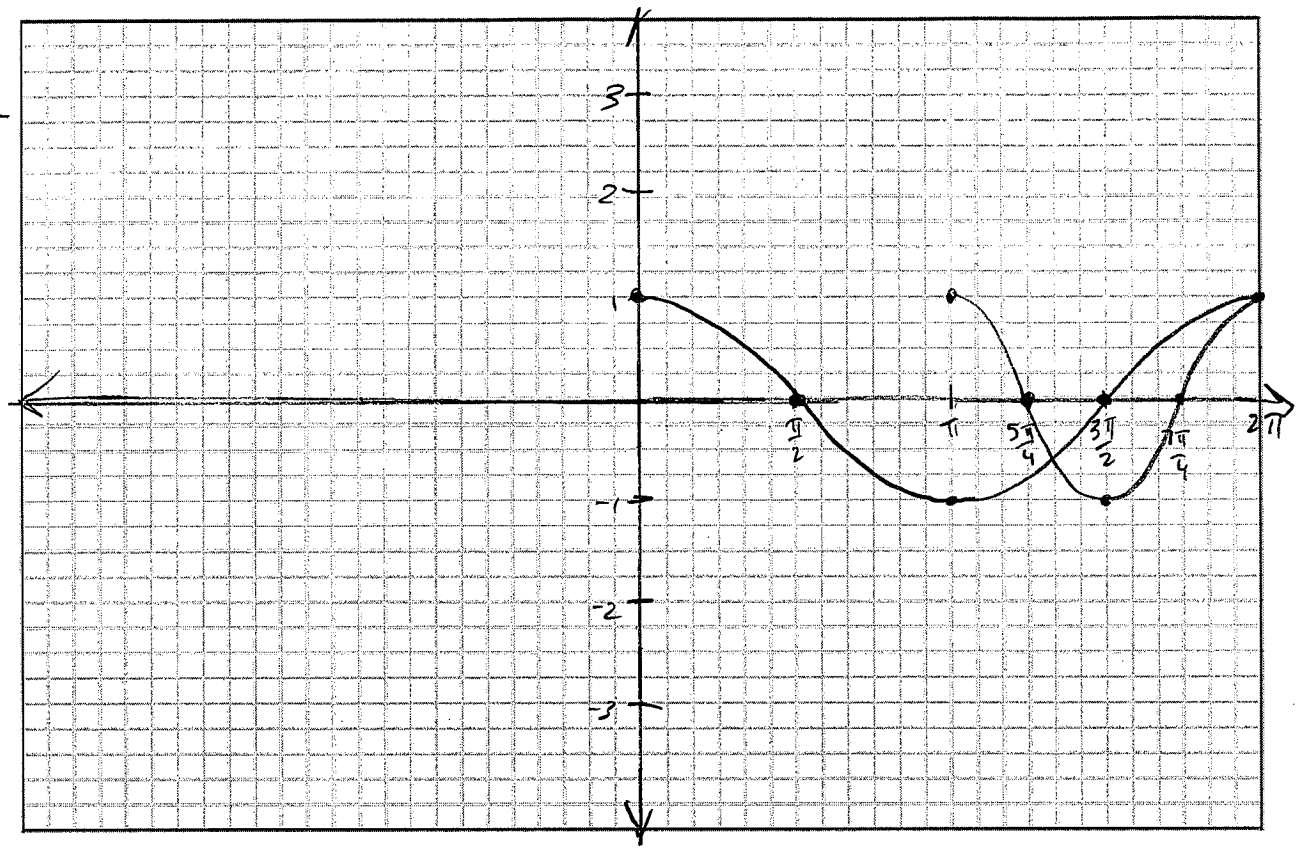
The period is 4π $\frac{2\pi}{\frac{1}{2}}$ 4π

The vertical shift is 1 units up (down) left right

Graph on the back!

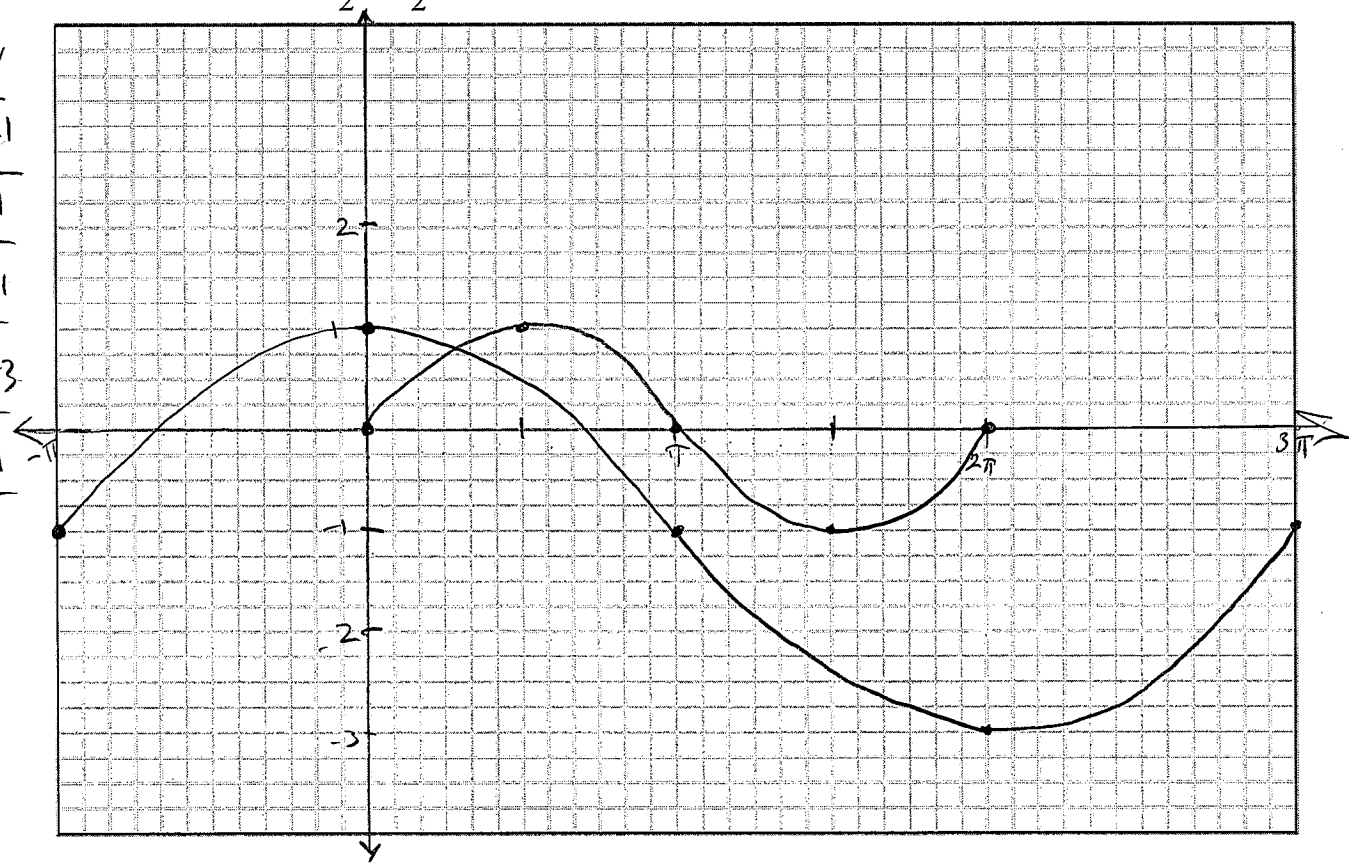
7) Graph y=cosx & $y = \cos 2(x - \pi)$ $\cos(2x - 2\pi)$

X	Y
π	1
$\frac{5\pi}{4}$	0
$\frac{3\pi}{2}$	-1
$\frac{7\pi}{4}$	0
2π	1



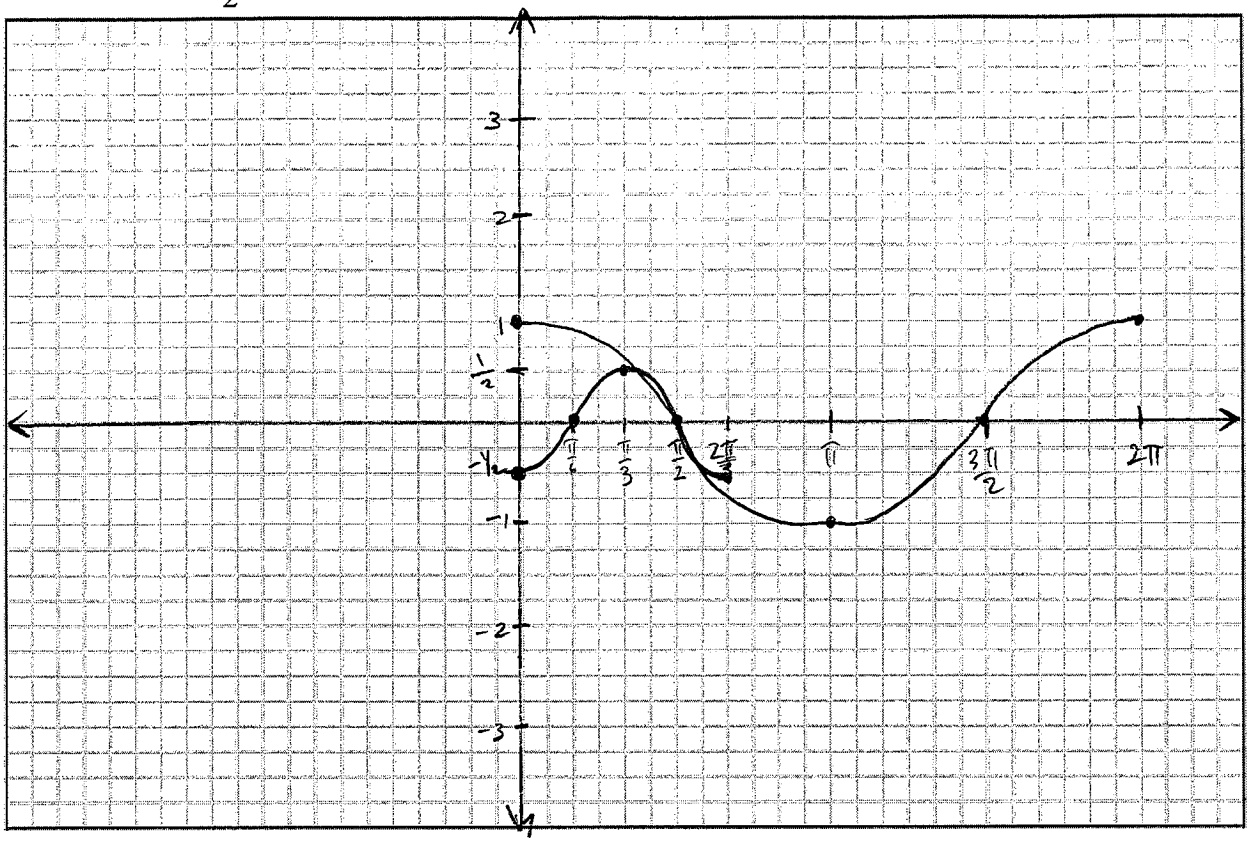
8) Graph y=sinx & $y = 2\sin(\frac{1}{2}x + \frac{\pi}{2}) - 1$

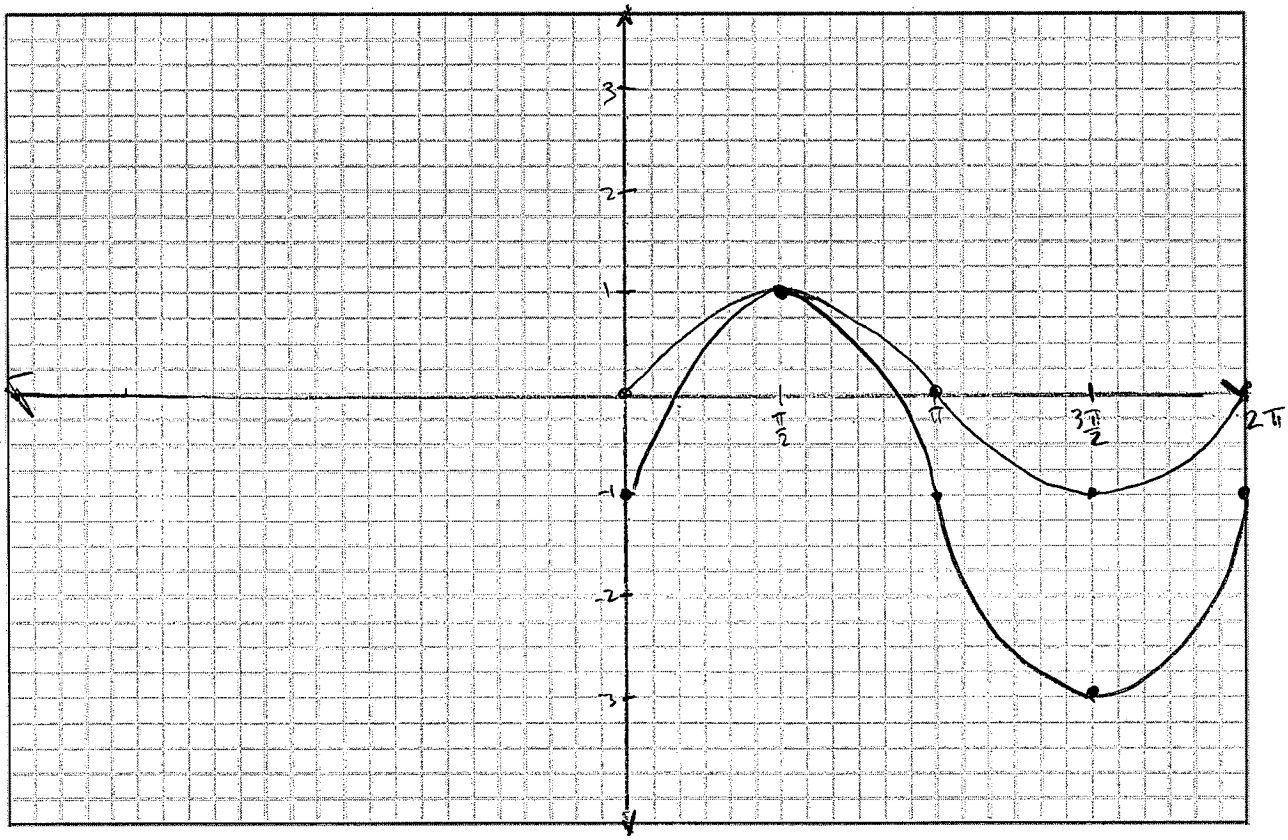
X	Y
$-\pi$	-1
0	1
π	-1
2π	-3
3π	-1



4) Graph $y=\cos x$ & $y=\frac{-1}{2}\cos 3x$

x	y
0	$-\frac{1}{2}$
$\frac{\pi}{6}$	0
$\frac{\pi}{3}$	$\frac{1}{2}$
$\frac{\pi}{2}$	0
$\frac{2\pi}{3}$	$-\frac{1}{2}$



5) Graph $y=\sin x$ & $y=2\sin x-1$

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