SPIRAL REVIEW #7.1

Key

1. State an equation of each function shown.
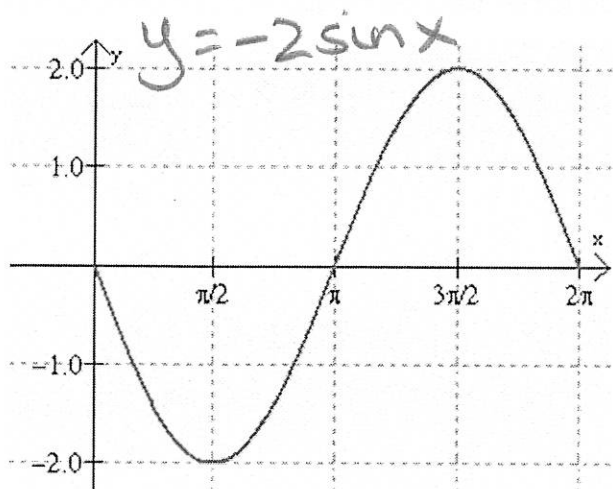
$y = 3\sin x$

sine function graph
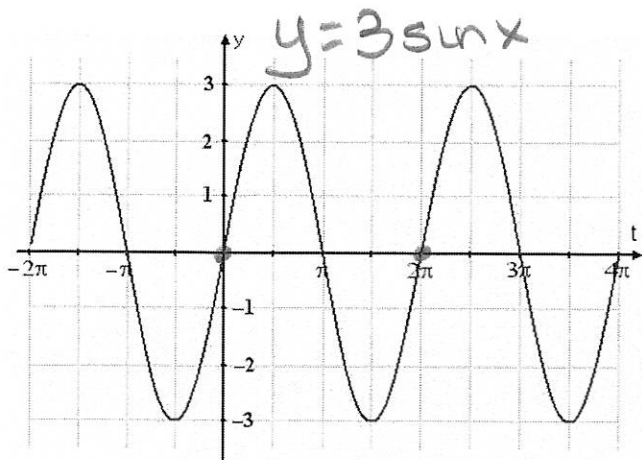
amp = 3

freq = 1

per $= \dfrac{2\pi}{freq} = 2\pi$

a ⊕
sine

$y = a \cdot \sin(bx + c) + d$
- amp
- freq
- HOR shift
- Vert shift

$y = -2\sin x$

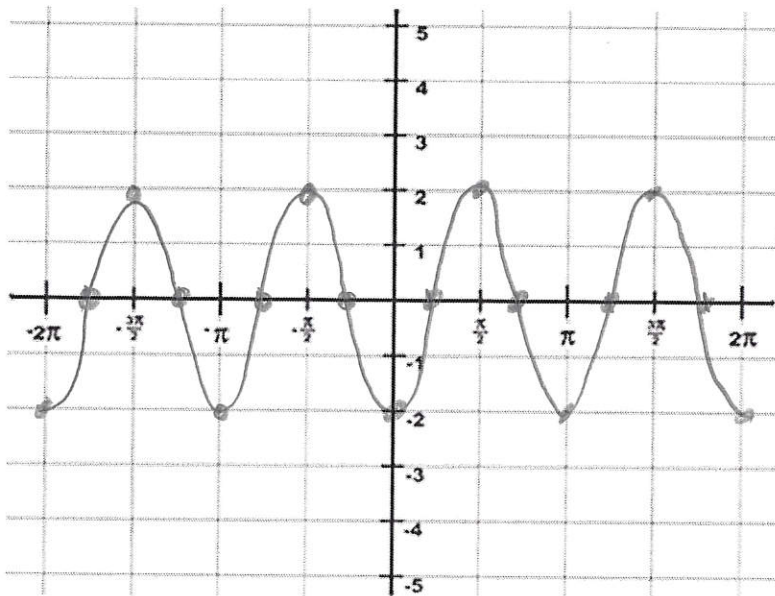amp = 2

freq = 1

per = 2π

a ⊖
sine

$y = 6\cos x$

amp = 6

freq = 1

per = 2π
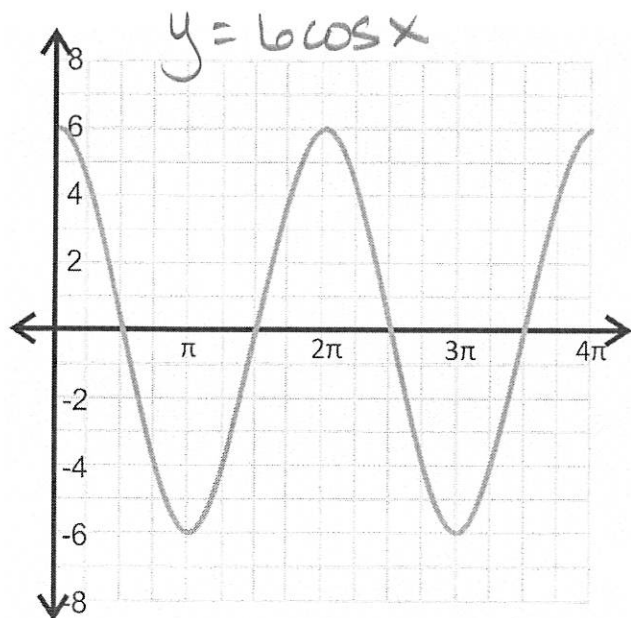
a ⊕
cosine

2. Sketch the graph of $y = -2 \cos 2x$ over the interval $-2\pi \leq x \leq 2\pi$

a ⊖
amp = 2
freq = 2
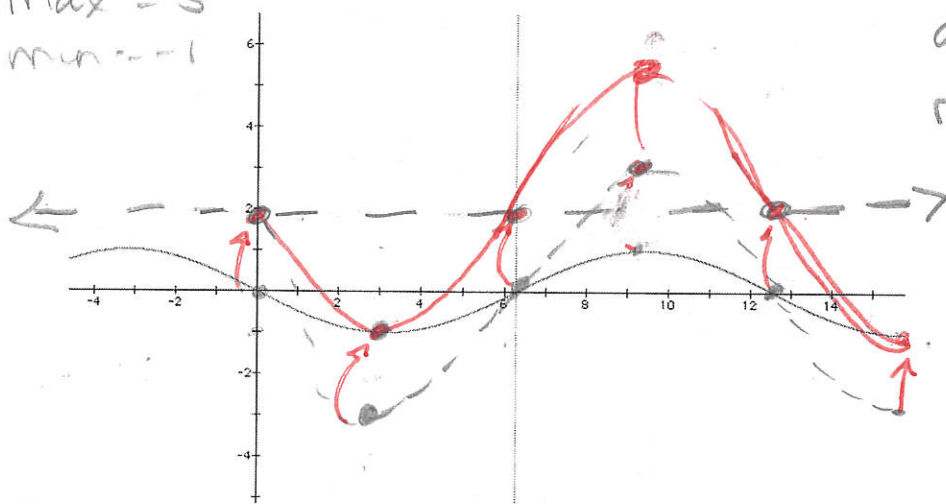per = $\frac{2\pi}{2} = \pi$

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

$y = -2\cos 2x$

3. What is the amplitude, period and frequency of the graph of the equation $y = -3 \cos \frac{1}{4}x$?

amp = 3
freq = $\frac{1}{4}$

per = $\frac{2\pi}{\frac{1}{4}} = 8\pi$

4. A function, $y = f(x)$ is represented by the graph shown. The function is transformed to create a new function $g(x) = 3f(x) + 2$. Sketch the new function, $g(x)$ on the same set of axes.
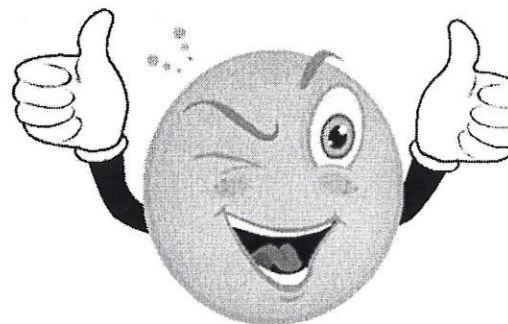
max = 5
min = -1

amp = 3
midline: $y = 2$

Stretch graph
& move up 2

move midline to $y = 2$
be 3 away from it!

$$F(x) = A \sin (BX - C) + D$$

"A" Stretches or squeezes the graph up and down
it stretches the graph up and down
if A > 1
Squeezes the graph
if 1 > A > 0
Flips the graph (top for bottom)
AND squeezes
if 0 > A > -1
Flips the graph (top for bottom)
AND stretches
if A < -1

"B" Stretches or squeezes the graph left and right.
It squeezes the graph left and right
if B > 1
Stretches the graph
if 1 > B > 0
Flips the graph (left for right)
AND stretches
if 0 > B > -1
Flips the graph (left for right)
AND squeezes
if B < -1

"C" Moves the graph to right if positive, to left if negative (because we used a negative sign in front of it)

"D" Moves the graph up if positive, down if negative.

Whoa.