

Exploring Sine

- Let's look at your workbook pg 110

> questions

$$y = a \cdot \sin(bx + c) + d$$

What happens to the graph when $a > 1$?

When $0 < a < 1$?

When $a < 0$?

What happens to the graph when $b > 1$?

When $0 < b < 1$?

When $b < 0$?

What happens to the graph when $c > 0$?

When $c < 0$?

What happens to the graph when $d > 0$?

When $d < 0$?

Feb 7-9:32 AM

Hand Graphing Trig Functions

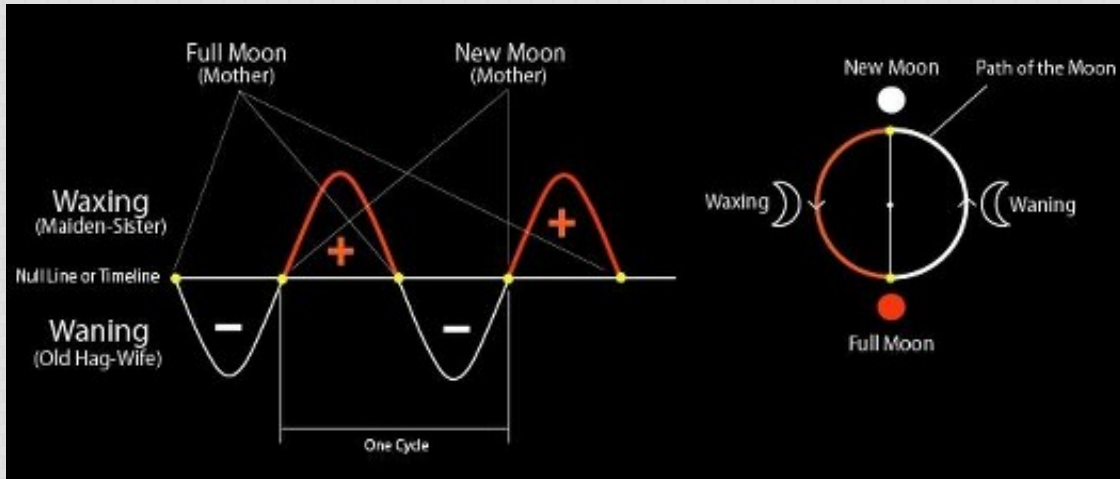
(Horizontal shift)

Part 1: Phase Shifts, Vertical Shifts, Reflections, Vertical Stretch/Shrink

$$y = a \sin(b(x-h)) + k$$

Feb 6-9:24 AM

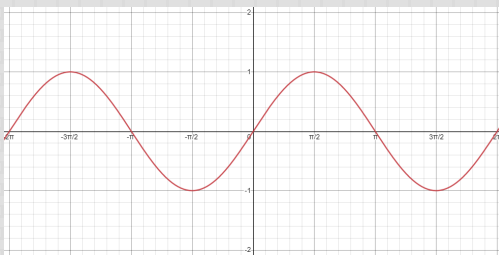
Periodic Graphs



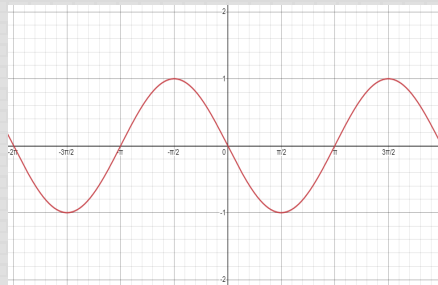
Feb 6-9:24 AM

Reflections

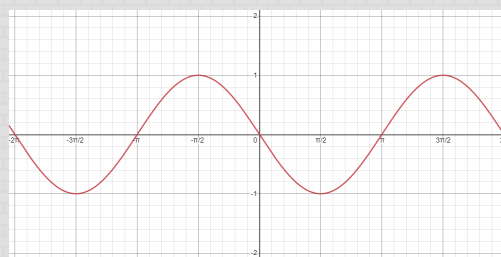
$$y = \sin(x)$$



$$y = -\sin(x)$$



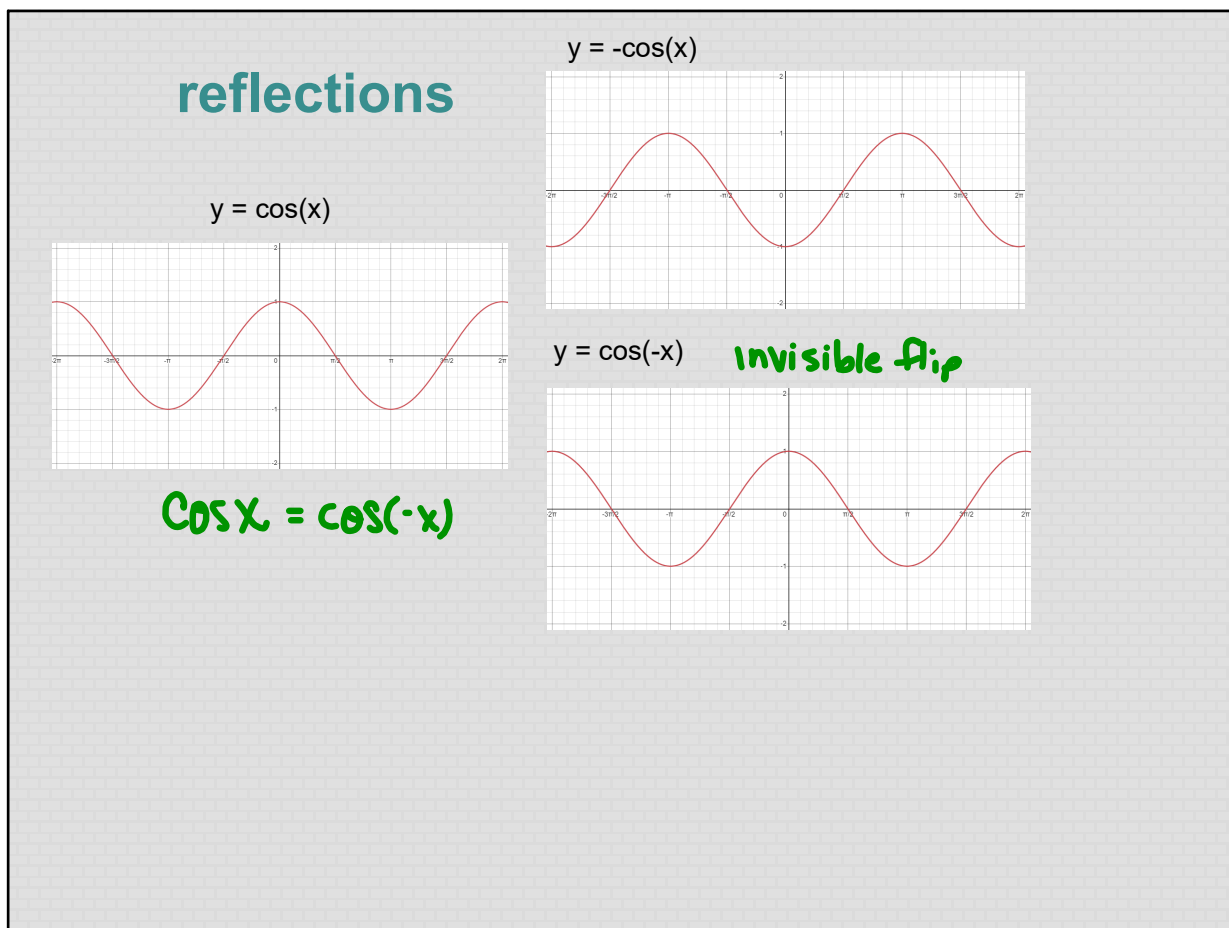
$$y = \sin(-x)$$



$$-\sin(x) = \sin(-x)$$

$$-\sin(x) = \sin(-x)$$

Jan 27-11:57 AM



Jan 27-11:57 AM

$$y = a \sin(b(x+h)) + k \quad y = a \cos(b(x+h)) + k$$

$|a|$ = amplitude (half the distance between the min and max)

period (how long it takes to repeat) = $2\pi/b$

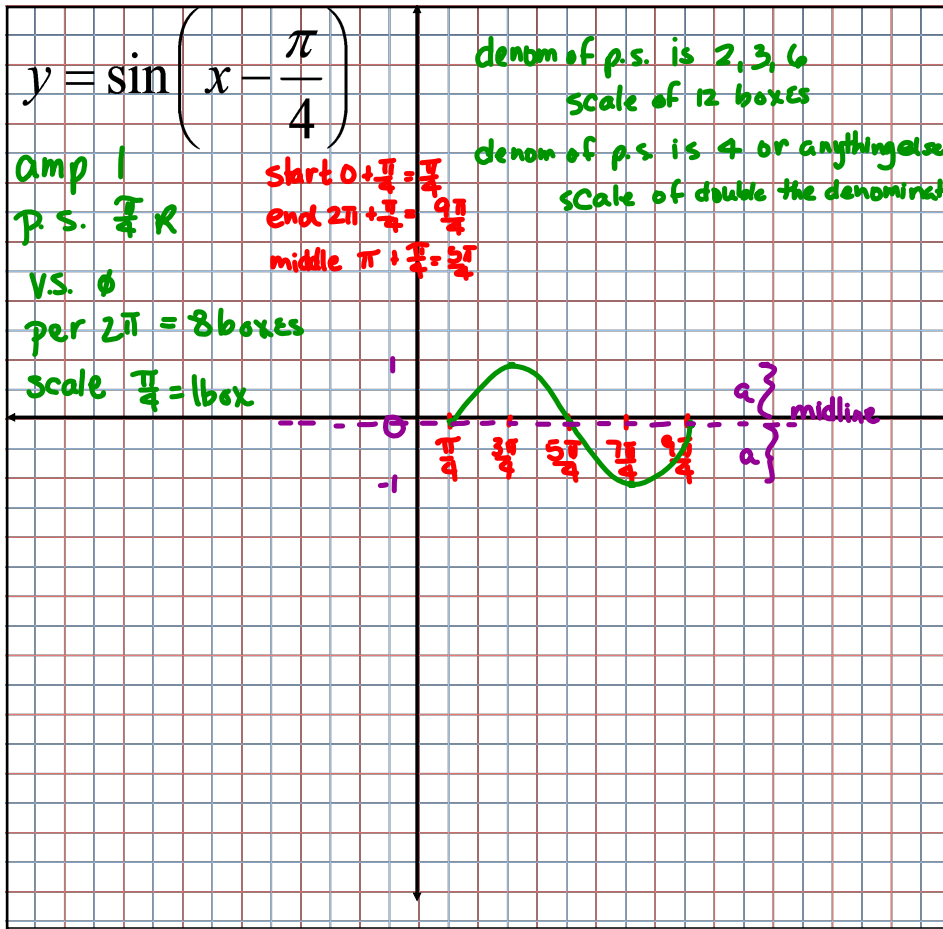
phase shift $\begin{matrix} + & - \\ \text{(left/right)} \end{matrix} = -h$

Vertical Shift $\begin{matrix} + & - \\ \text{(up/down)} \end{matrix} = k$ (midline)

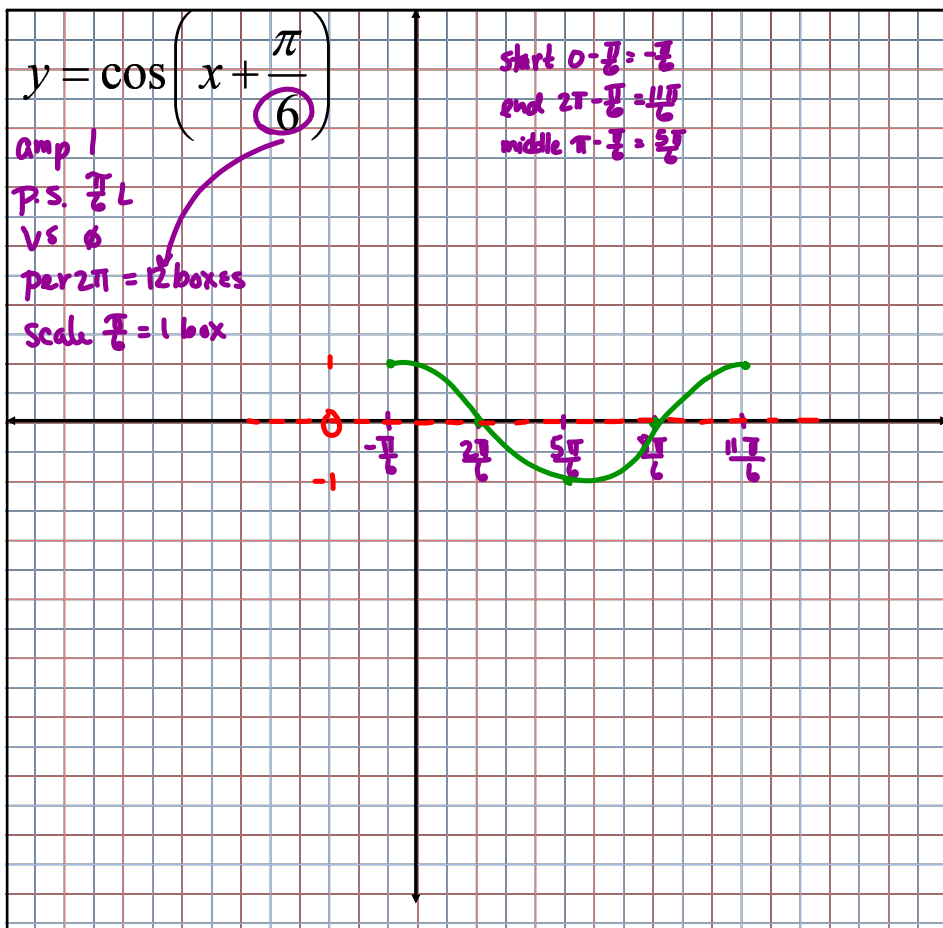
$-a$ = flipped/reflected over x-axis

$-b$ = flipped/reflected over y-axis

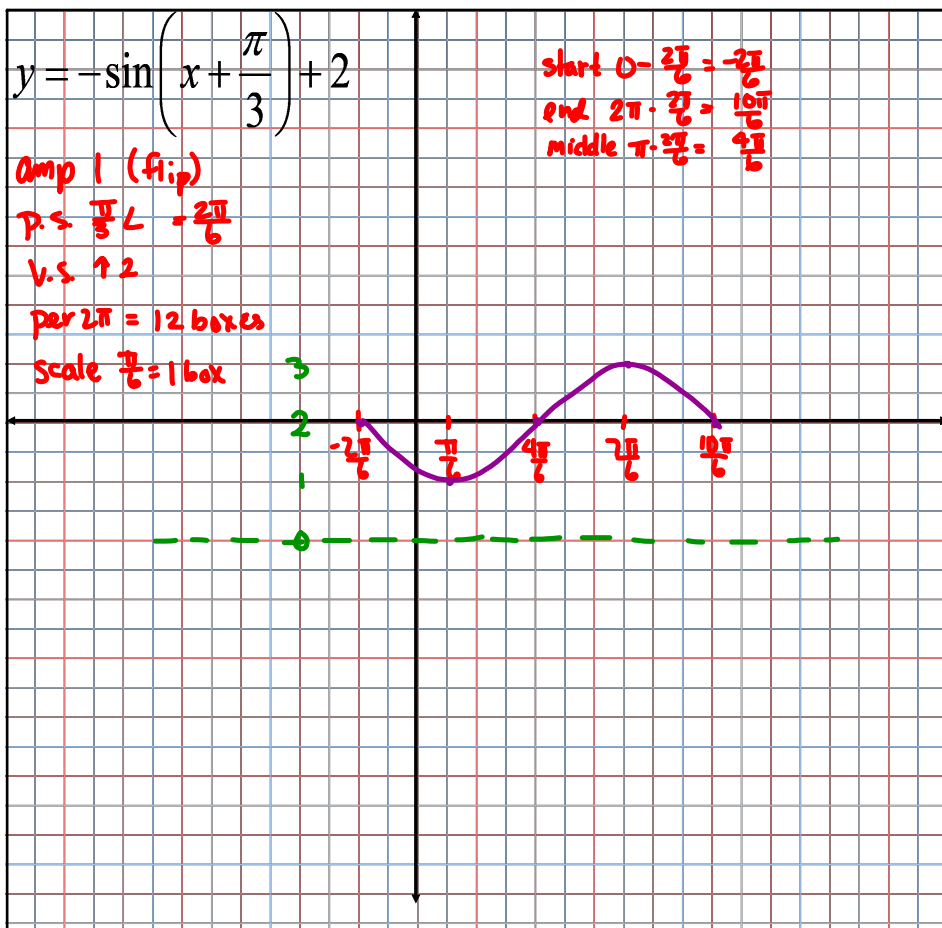
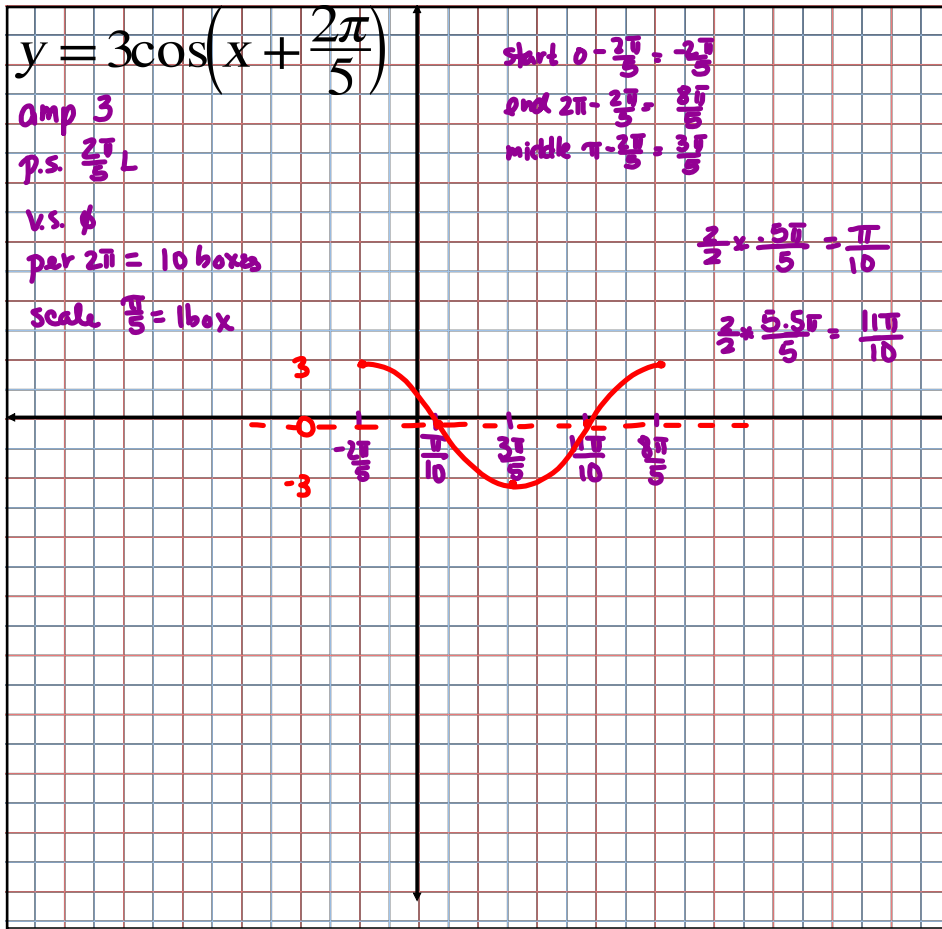
Jan 3-4:49 PM

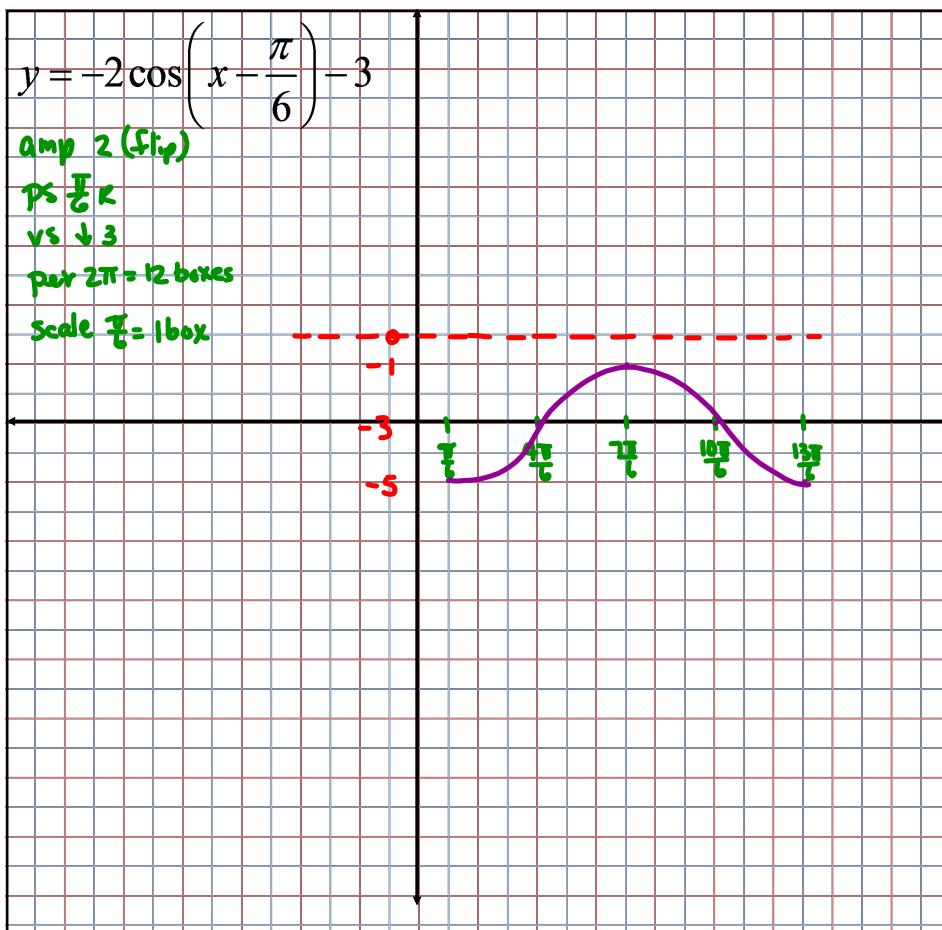


Feb 11-8:20 AM

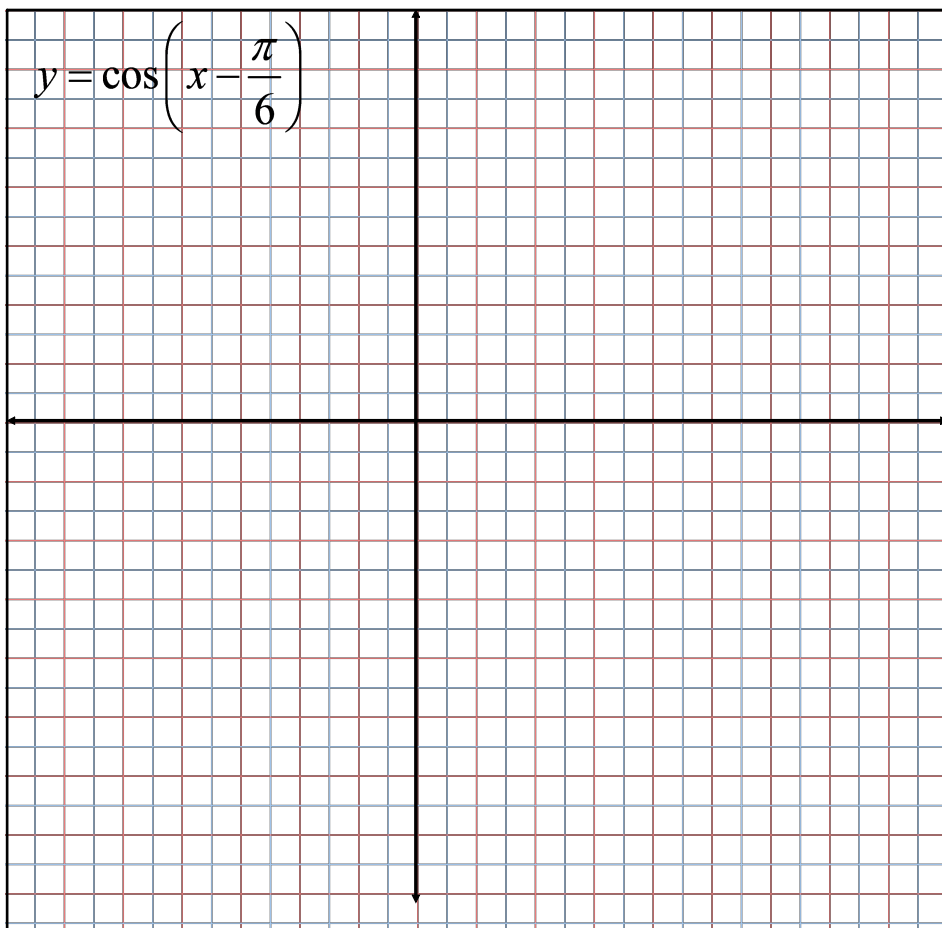


Feb 11-8:20 AM





Feb 11-8:20 AM



Feb 11-8:20 AM

HOMEWORK



Workbook p 111 Part 1 (1-6)

Hand Graphing Trig Functions

Graph the functions on a separate piece of **graph paper**. Show your work and label the 5 key values on the x-axis. Remember to label the scale of the y-axis, too.

Part 1

1. $\sin\left(x - \frac{3\pi}{4}\right)$

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

3. $\frac{1}{2}\cos\left(-\frac{5\pi}{6} + x\right)$

4. $\cos\left(x - \frac{2\pi}{7}\right) + 4$

5. $-\frac{1}{4}\sin\left(-\frac{\pi}{6} + x\right)$

6. $2\cos\left(x + \frac{3\pi}{5}\right)$

Feb 2-9:51 PM