

# HW: 8 Keep Your Shades On

A.) On the set of axes below, solve the following system of inequalities graphically.

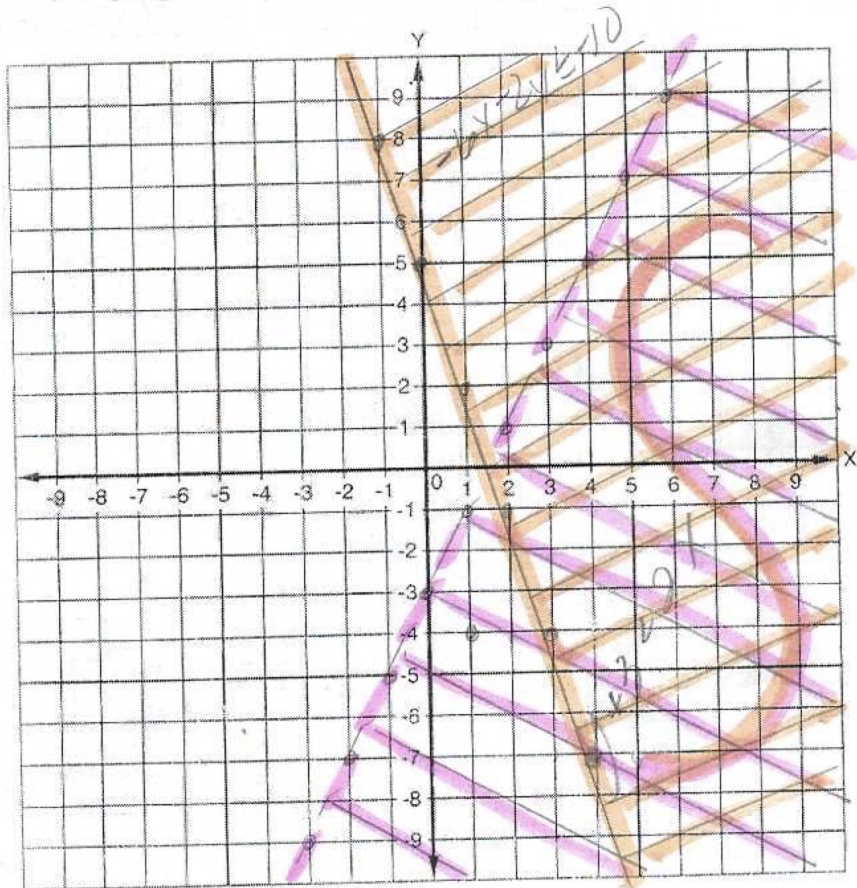
$y < 2x - 3$   
 $m = \frac{2}{1}$   
 $b = -3$

$-6x - 2y \leq -10$   
 $+6x$   
 $\frac{-2y \leq -10}{-2}$   
 $y \geq 5$

B.) State the coordinates of one point that satisfies  $y + 3 < 2x$ , but does not satisfy  $-6x - 2y \leq -10$ .

$(1, -4)$   
 $y + 3 < 2x$   
 $-4 + 3 < 2(1)$   
 $-1 < 2$   
 true

$(1, -4)$   
 $-6x - 2y \leq -10$   
 $-6(1) - 2(-4) \leq -10$   
 $-6 + 8 \leq -10$   
 $2 \leq -10$   
 not true



Name: Key  
 Glue on page 100 after I grade!!!

April 2

**9**

Show it!

2(1, 3, 5)  
2, 4, 10

- Given a quadratic function with a vertex of  $(-3, -9)$  and  $a = 2$ .
- Graph the function.
  - Write the function in vertex form.
  - Solve for the zeros using vertex form. Round to the nearest thousandth.
  - State the range of the function.  $y \geq -9$
  - State the domain over which the function is decreasing.  $(-\infty, -3]$

$$f(x) = 2(x+3)^2 - 9$$

$$\frac{\sqrt{9}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$$

$$0 = 2(x+3)^2 - 9$$

$$+9 \qquad +9$$


---


$$9 = 2(x+3)^2$$

$$\frac{9}{2} = (x+3)^2$$

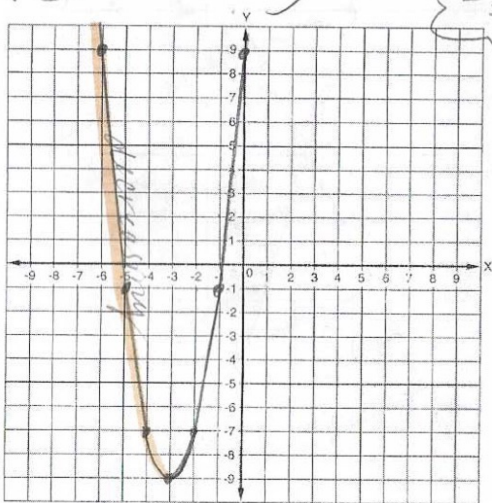
$$\sqrt{\frac{9}{2}} = \sqrt{(x+3)^2}$$

$$+\sqrt{\frac{9}{2}} = x+3$$

$$-\sqrt{\frac{9}{2}} = x+3$$

$$-3 \pm \sqrt{\frac{9}{2}} = x$$

$$-3 \pm \frac{3\sqrt{2}}{2} = x$$



x	y
-6	9
-5	-1
-4	-7
-3	-9
-2	-7
-1	-1
0	9

Graph it!

**10**

Graph the piecewise function:

$$f(x) = \begin{cases} x^2, & x < 1 \\ \frac{1}{2}x + \frac{1}{2}, & x > 1 \end{cases}$$

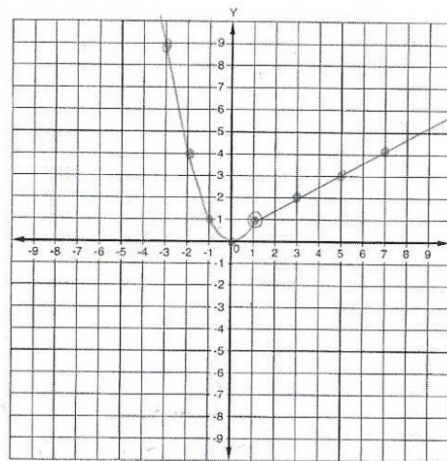
vertex (0,0)

x	y
1	1
3	2
5	3
7	4

Evaluate:

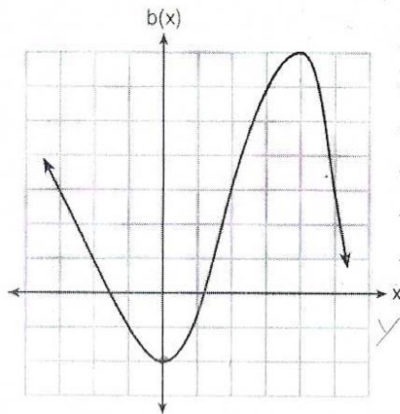
$$f(-3) = 9$$

$$f(7) = 4$$

**11**

Describe it!

Sean is asked to transform the graph of  $b(x)$ . The graph of  $b(x)$  is transformed using the equation  $h(x) = b(x-2) - 3$ . Describe how the graph of  $b(x)$  changed to form the graph of  $h(x)$ .



It moved 2  
units to the  
right and 3  
units down

$$y = a|x-h| \pm k$$

$\downarrow$  right     $\downarrow$  down