KEY

3.3 Graphing and Solving Systems of Linear Inequalities

Ex. 1 Is $(4, 2)$ a solution? NO

$$3x - y \leq 2;\ 2x + y \leq 1$$

$3(4)-2 \leq 2$ $\quad$ $2(4)+2 \leq 1$

$10 \leq 2$ $\quad$ $10 \leq 1$

NO $\quad$ NO

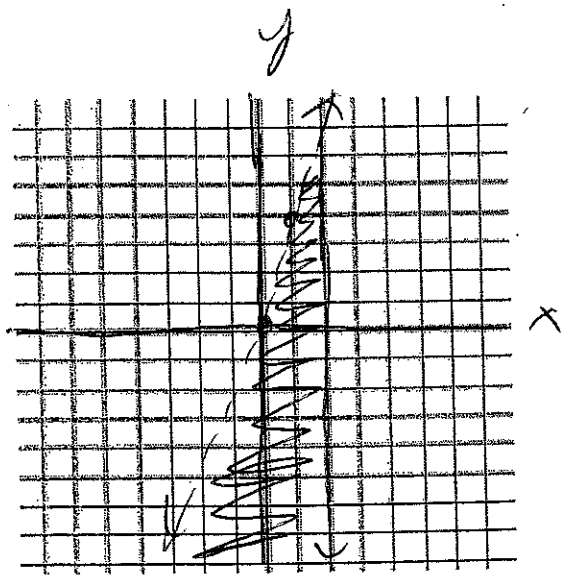
Ex. 2 Graph and find a solution.

$4x > y; x \leq 2$

left

$y < 4x$

below



Ex. 3 Graph and find a solution.

$$x - 2y \leq 3;\ 3x - y < 4$$

$-2y \leq -x + 3$

$\frac{-2y}{-2} \leq \frac{-x}{-2} + \frac{3}{-2}$

$y \geq \frac{1}{2}x - \frac{3}{2}$

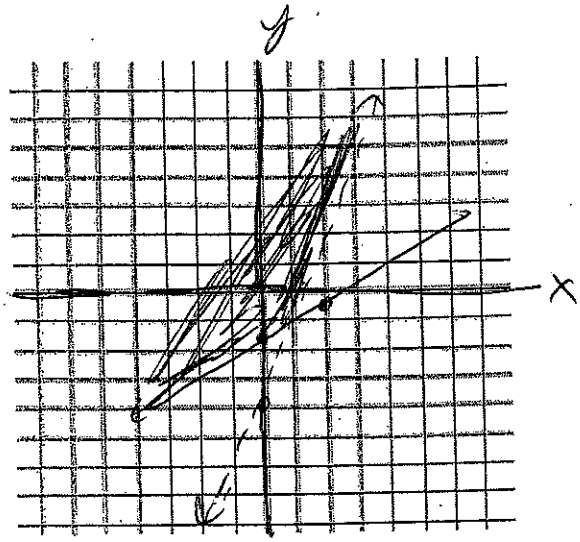
above

$-y < -3x + 4$

$\frac{-y}{-1} < \frac{-3x}{-1} + \frac{4}{-1}$

$y > 3x - 4$

above



Ex. 4 Graph the system.

$x \leq 0$ Left

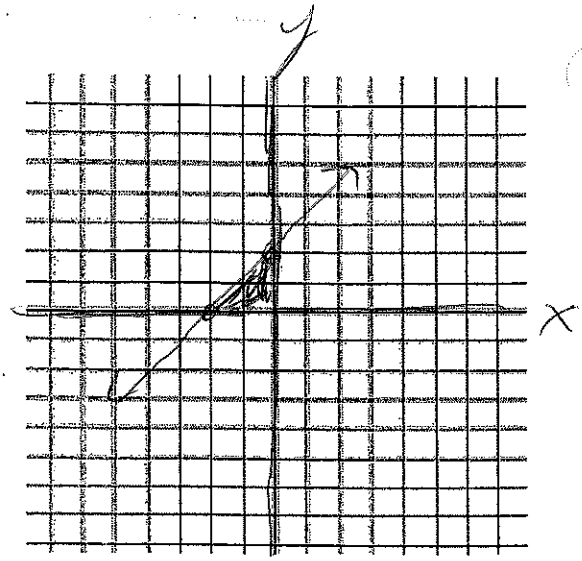
$y \geq 0$ above

$x - y \geq -2$

$-1y \geq -x - 2$

$\frac{-1}{-1} \quad \frac{}{-1} \quad \frac{}{-1}$

$y \leq x + 2$ below



Problem 3 Using a System of Inequalities

Got It? **A pizza parlor charges \$1 for each vegetable topping and \$2 for each meat topping. You want at least five toppings on your pizza. You have \$10 to spend on toppings. How many of each type of topping can you get on your pizza?**

15. Complete the model to write a system of inequalities.

Relate

number of vegetable toppings	plus	number of meat toppings	is at least		
cost of vegetable toppings	plus	cost of meat topping	is no more than	10	

Define Let v = the number of vegetable toppings.
Let m = the number of meat toppings.

Write

$v + m \geq 5$

$1v + 2m \leq 10$