Algebra 2

Ch. 3 Handout 3.3

Systems of Inequalities

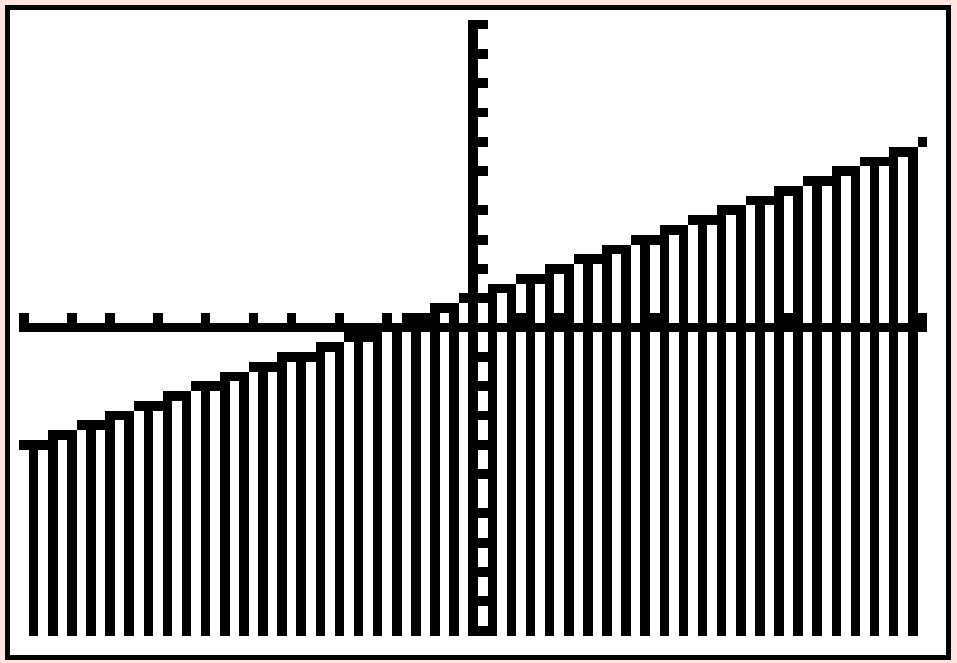
You can solve a system of linear inequalities by graphing. Recall from lesson 2-7 that when the variables represent real numbers, the solutions of an inequality include all the points on one side of a boundary line. Thus, for two inequalities, every poin in the region of overlap of the two solutions is a solution of the system.

Solving a System of Inequalities: $y \le \frac{1}{2}x + 1$

$y \ge -\frac{1}{2}x - 2$

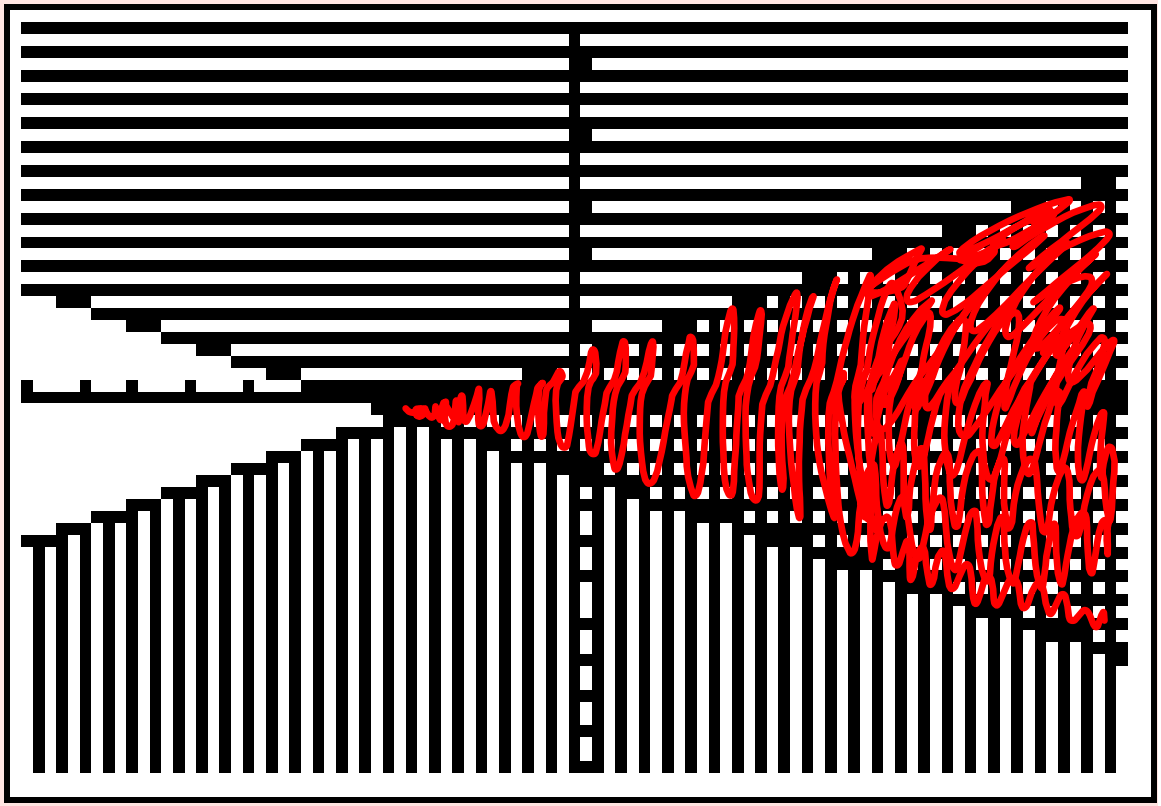
Graph each inequality. First graph the boundary lines. Then decide which side of each boundary line contains solution and whether the boundary line is included.

$y \le \frac{1}{2}x + 1$



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

$$y \leq \frac{1}{2}x + 1$$



Graph each inequality. First graph the boundary lines Then decide which side of each boundary line contain solution and whether the boundary line is included.

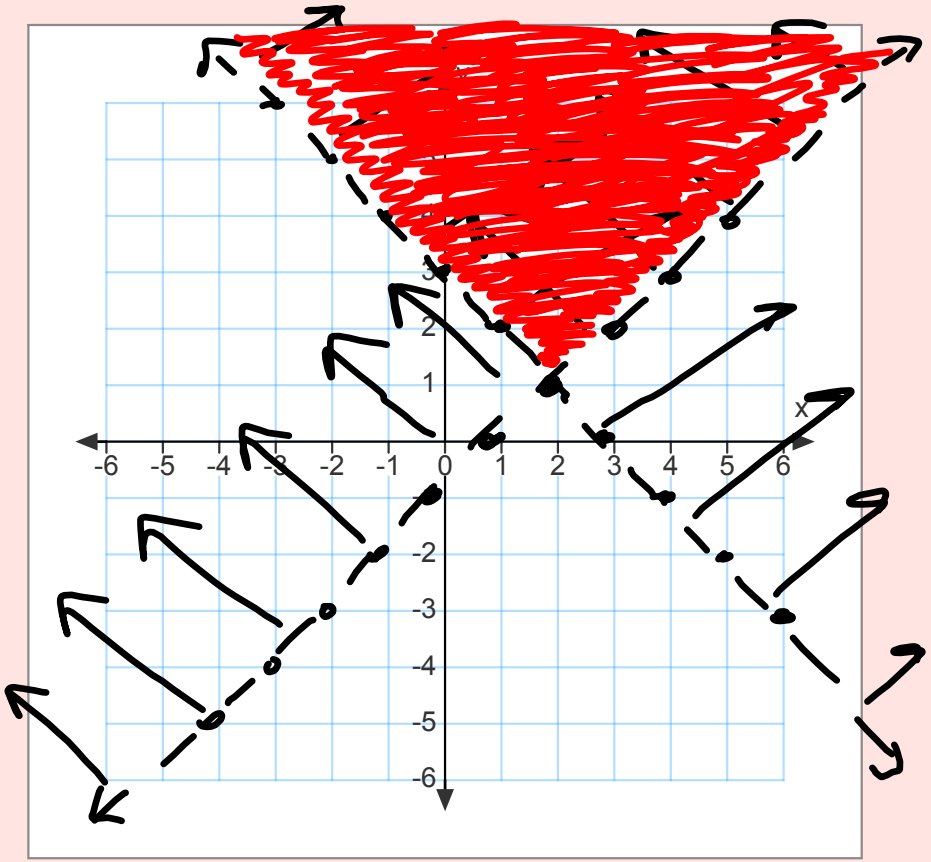
1) $\begin{cases} x + y > 3 \\ y > x - 1 \end{cases}$

$x + y > 3$ $m = -1$

$y > -x + 3$ $b = 3$

$y > x - 1$ $m = 1$

$b = -1$



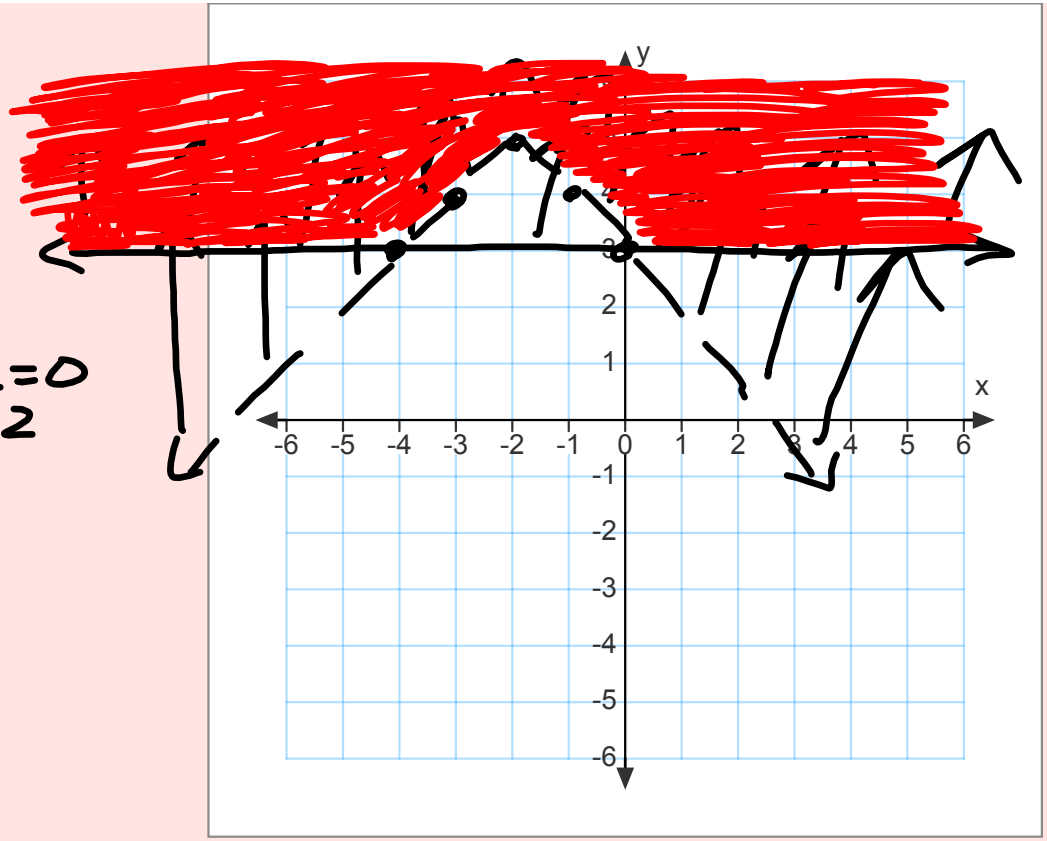
2) $\begin{cases} y \geq 3 \\ y > -|x+2|+5 \end{cases}$

$y > -|x+2|+5$

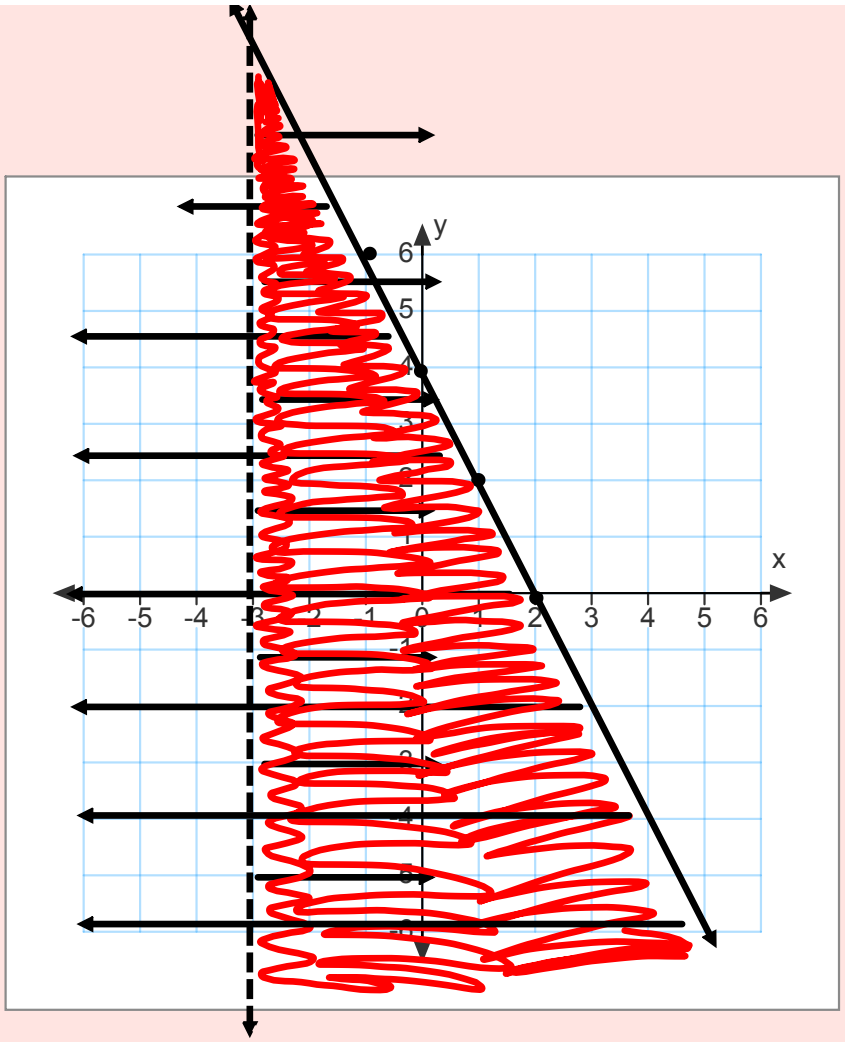
$V(-2, 5)$

$x+2=0$
$x=-2$

x	y
-4	3
-3	4
-2	5
-1	4
0	3



3) $\begin{cases} y \le -2x + 4 \\ x > -3 \end{cases}$

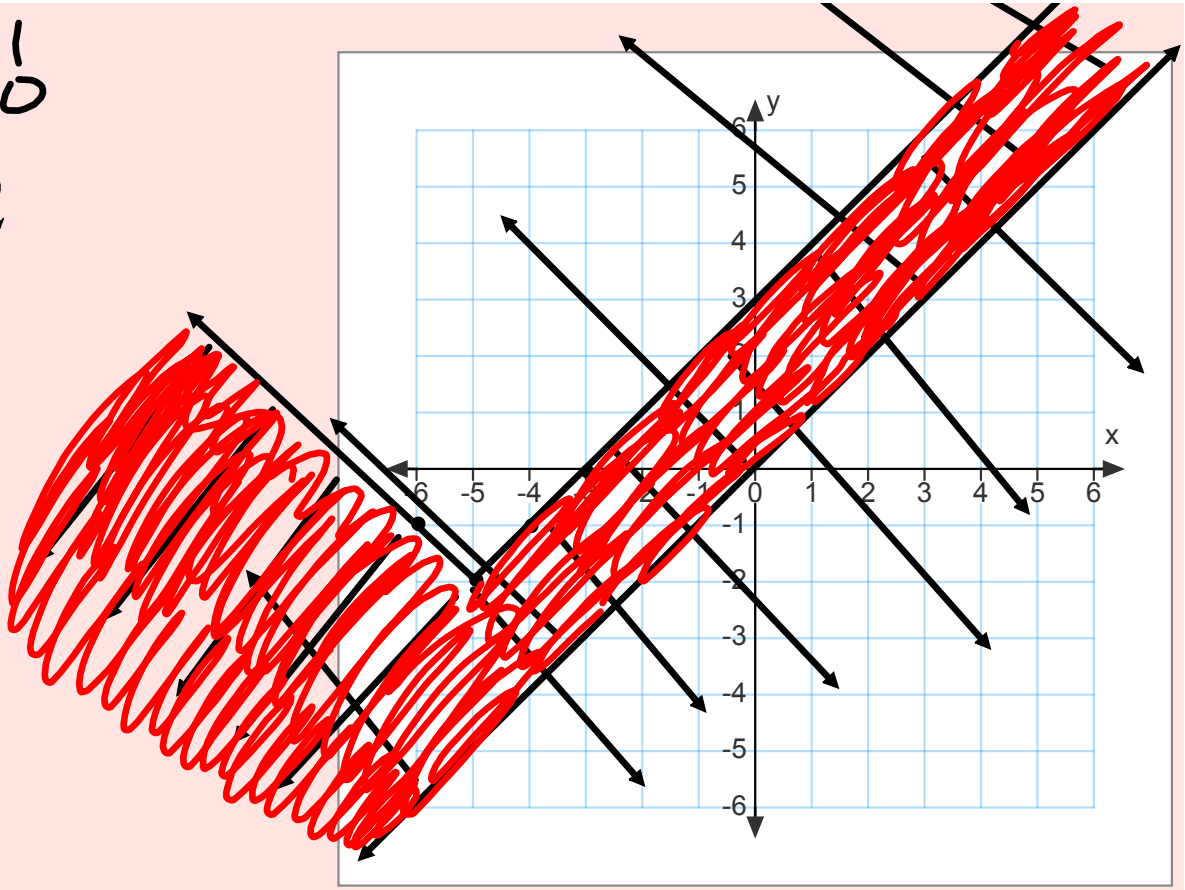


4) $\begin{cases} y \geq x \\ y \leq |x+5| - 2 \end{cases}$

$m = 1$
$b = 0$

V (-5, -2)

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



Assignment:

Day 1: Pgs 136-138 4-6, 7-15 odds, 19-29 odd, 43-47 odds