

5-6 Solving Systems of Linear Inequalities

1. Graph each inequality individually.

***Remember the difference between solid, dotted, above below...

solid \geq \leq	vs.	dotted $>$ $<$		above vs. below $>$ \geq vs. $<$ \leq
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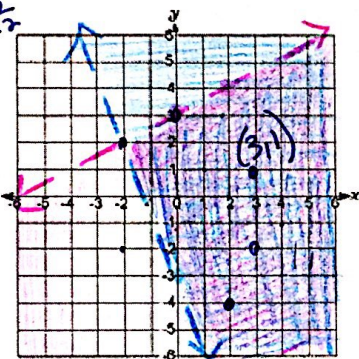
2. The overlapping area is the solution.

*If there is no overlap, there are no solutions.

Example 1: $-\frac{5}{2}$ $\frac{5}{2}$

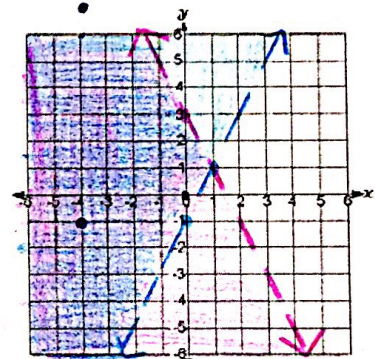
$$\begin{cases} y > -\frac{5}{2}x - 3 \\ y < \frac{1}{2}x + 3 \end{cases}$$

- a) (0,0) yes
- b) (-2,-2) no
- c) (4,-1) yes
- d) (1,1) yes



Example 2:

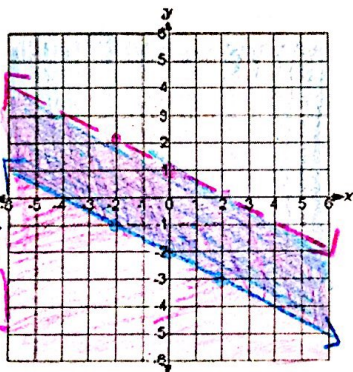
$$\begin{cases} y > 2x - 1 \\ y < -2x + 3 \end{cases}$$



Example 3:

$$\begin{cases} x + 2y \geq -4 \\ x + 2y < 2 \end{cases}$$

$$\begin{aligned} x + 2y &\geq -4 & | & x + 2y < 2 \\ \frac{2y}{2} &\geq \frac{-x-4}{2} & | & \frac{2y}{2} < \frac{-x+2}{2} \\ y &\geq -\frac{1}{2}x - 2 & | & y < -\frac{1}{2}x + 1 \end{aligned}$$



★ Example 4:

$$\begin{cases} x \geq 3 \\ y < 4 \end{cases}$$

dotted horizontal shaded below

