

# D. Solving Systems of Inequalities

Systems of Inequalities - 2 or more inequalities. The solution(s) must make BOTH inequalities **TRUE**

**EX**

$$y \leq -x - 2 \quad \leftarrow \text{Line 1}$$

$$y \geq -5x + 2 \quad \leftarrow \text{Line 2}$$

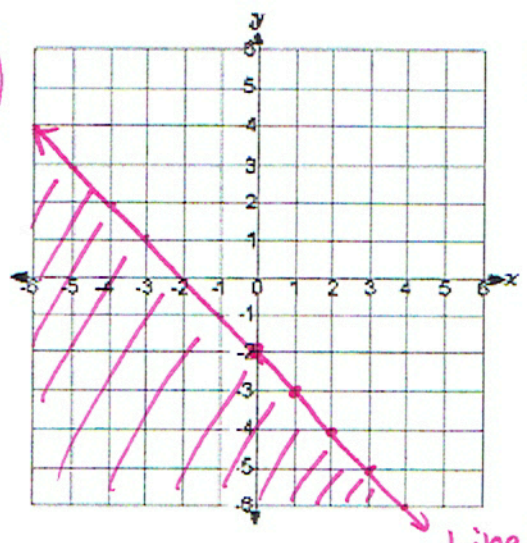
Step 1 Graph ~~both lines~~ the 1st line (  $\leftrightarrow$  if  $\leq$  or  $\geq$  ) (  $\leftarrow \dots$  if  $<$  or  $>$  )

Step 2 Choose a test point (0,0) to shade in that side of the line

Step 3 Graph second line

Step 4 Choose (0,0) to shade in correct side for line 2.

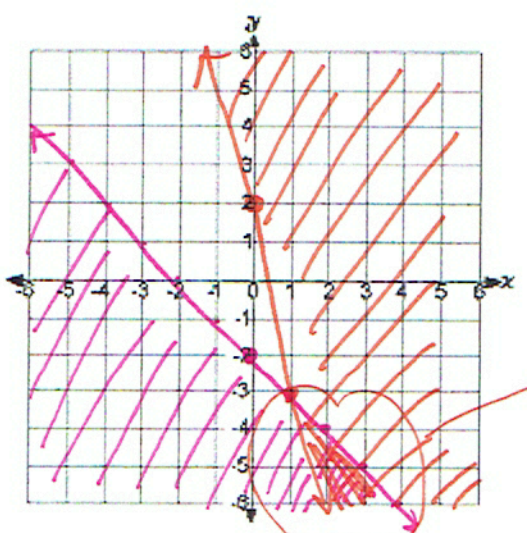
STEP 1 and 2



Step 5 Only leave the area that was shaded in TWICE! Erase all other shaded regions.

$0 \stackrel{?}{\leq} 0 - 2$        $0 \stackrel{?}{\leq} -2$  FALSE!  
Shade inside without (0,0)

STEP 3 and 4

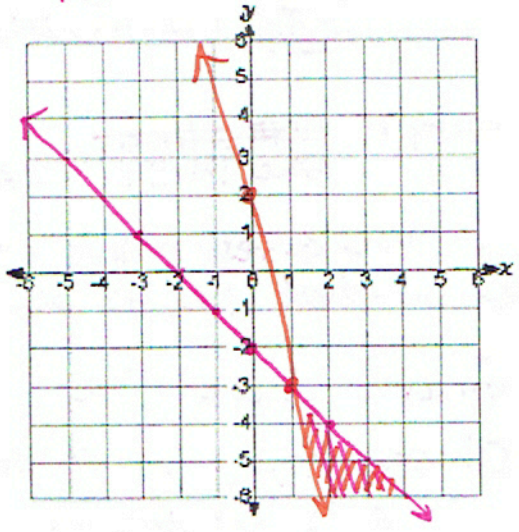


Line 2  $y \geq -5x + 2$   
 $0 \geq 0 + 2$   
 $0 \geq 2$  No! Side w/o (0,0)

**IMPORTANT!**  
Notice how this region is shaded in twice!  
This is the only part you will keep. Erase all other shaded areas!

Final Answer (after erasing)

Step 5



Questions?  
Ask for help! 😊

