

Algebra 1

6.6

Solve systems of linear inequalities by graphing  
Apply systems of linear inequalities

\* Ch. 5.6

linear inequality\*  
system

boundary

open

closed

$y = k$  (horizontal)

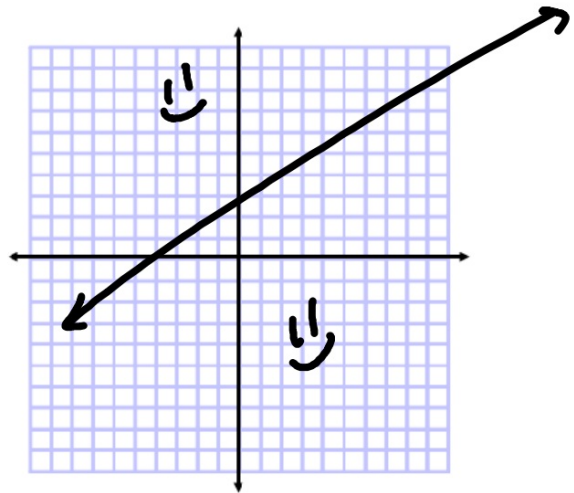
$x = k$  (vertical)

whiteboards

$<$   
less than

$>$   
greater than

$\circ$  ---  $<$   
 $\bullet$  ———



### Example 1 Solve by Graphing

Solve the system of inequalities by graphing.

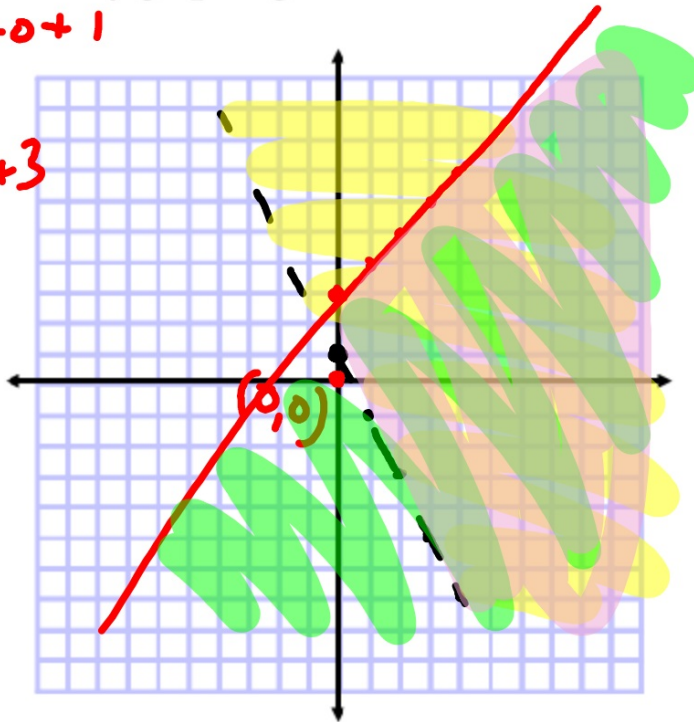
$$y > -2x + 1$$

$$y \leq x + 3$$

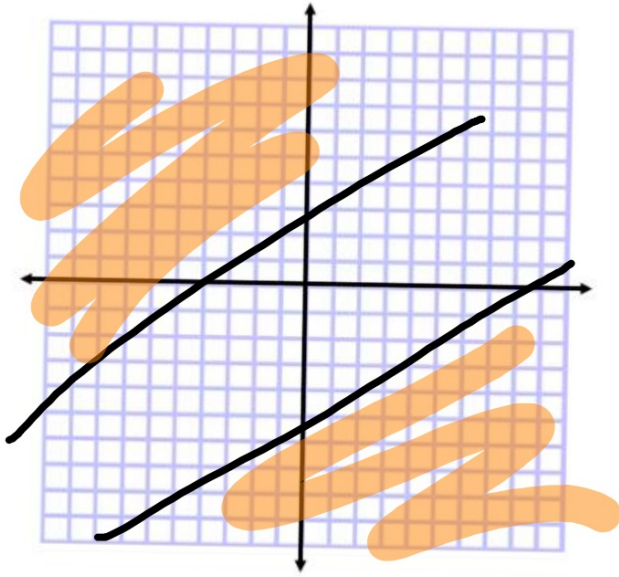
$$y = -2x + 1$$
$$y = mx + B$$

$$0 \leq 0 + 3$$
$$0 \leq 3$$

$$0 > -2 - 0 + 1$$
$$0 > -1$$
$$y = \frac{1}{2}x + 3$$



1. graph boundary (solid or dotted?)
2. choose a test point and shade T
3. repeat for other inequality
4. Answer?



$$0 \leq 3$$

### Guided Practice

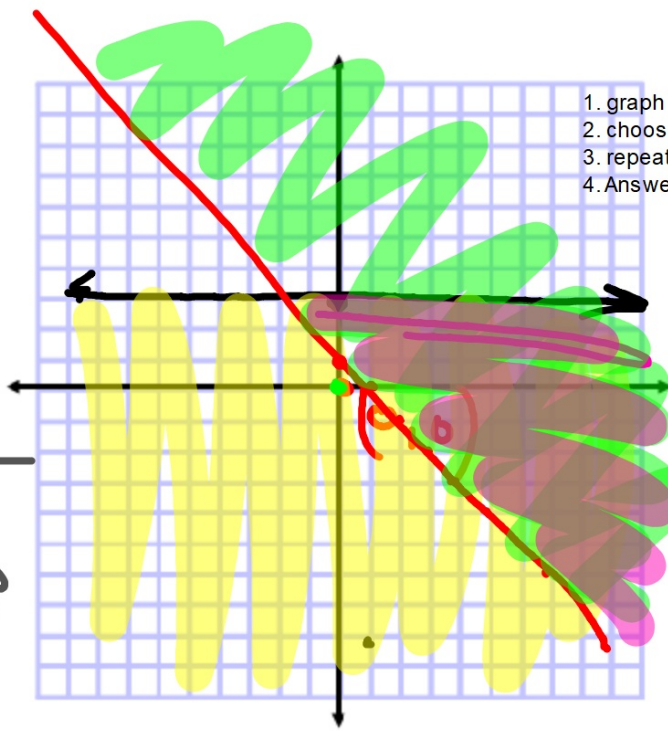
1A.  $y \leq 3$

$x + y \geq 1$

$0 + 0 \geq 1$

$0 \geq 1$

$$\begin{array}{r} y = 3 \quad x + y = 1 \\ \quad \quad -x \quad -x \\ \hline y = -x + 1 \\ y = mx + b \end{array}$$

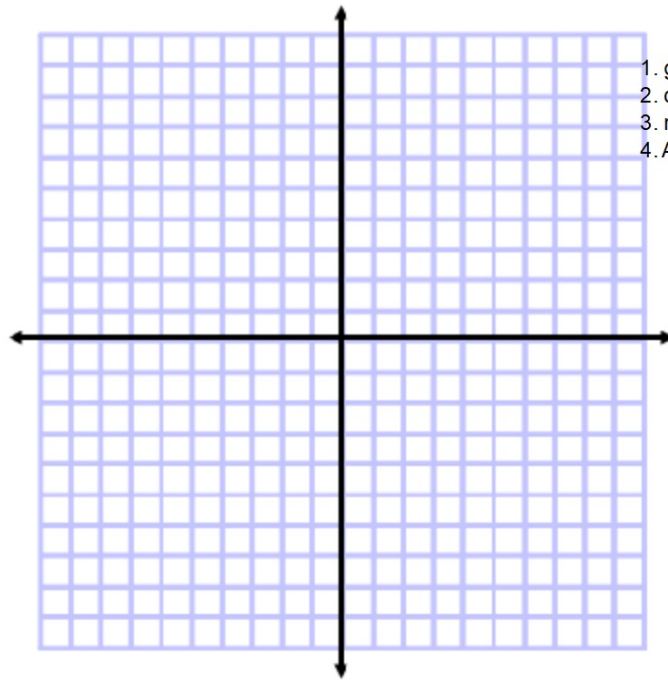


1. graph boundary (solid or dotted?)
2. choose a test point and shade T
3. repeat for other inequality
4. Answer?

$y = n$   
horiz

$x = n$   
vert.

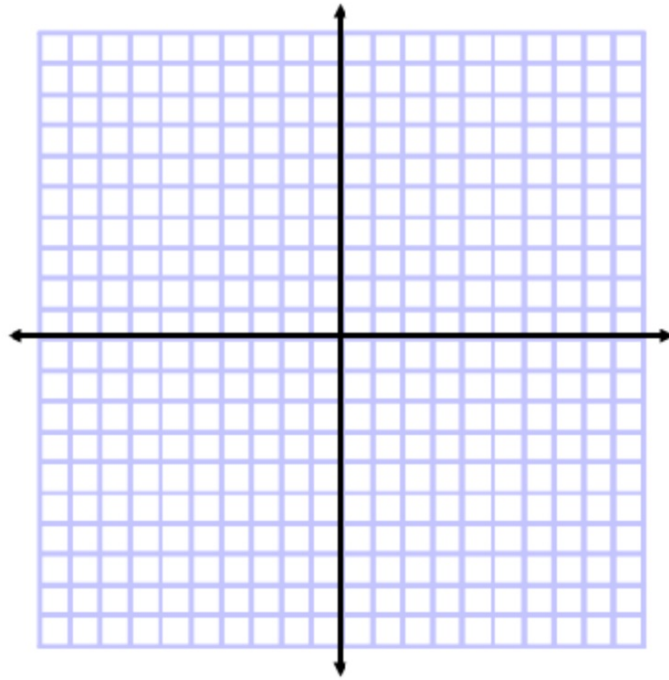
**1B.**  $2x + y \geq 2$   
 $2x + y < 4$



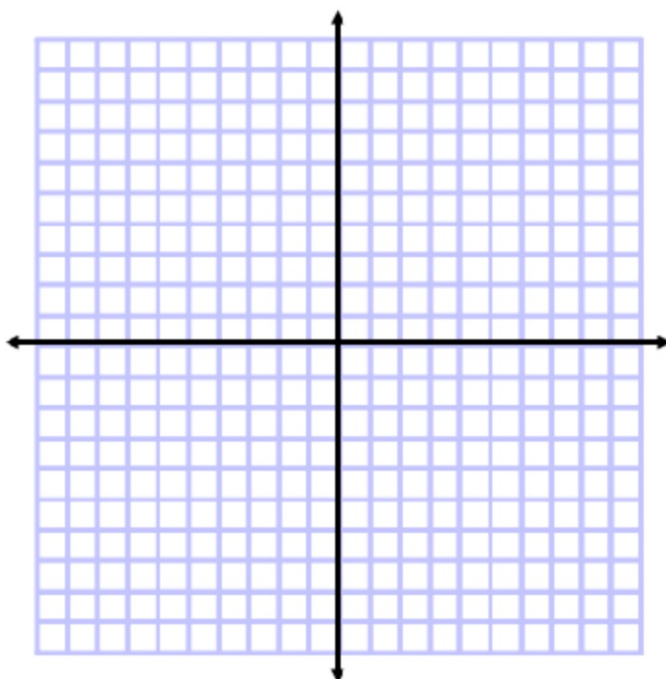
1. graph boundary (solid or dotted?)
2. choose a test point and shade T
3. repeat for other inequality
4. Answer?

Whiteboards

**1C.**  $y \geq -4$   
 $3x + y \leq 2$



10.  $x + y > 2$   
 $-4x + 2y < 8$



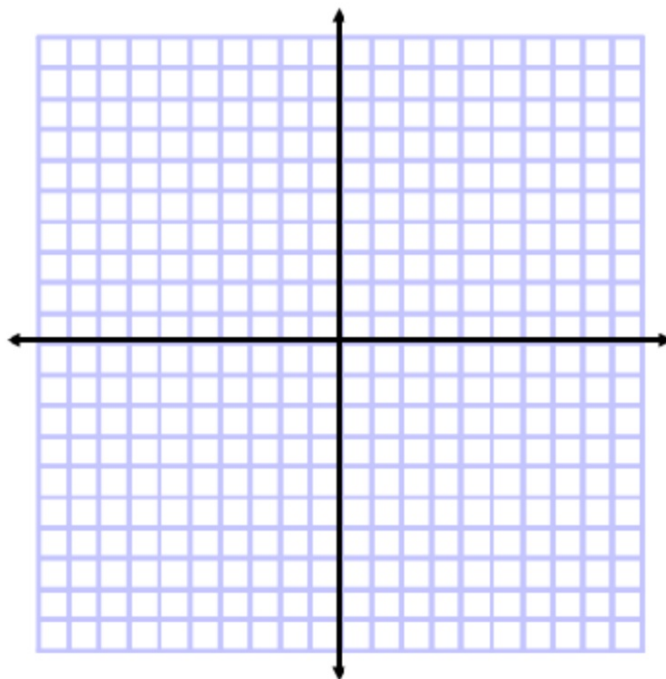
Where is it shaded by both?

### Example 2 No Solution

Solve the system of inequalities by graphing.

$$3x - y \geq 2$$

$$3x - y < -5$$



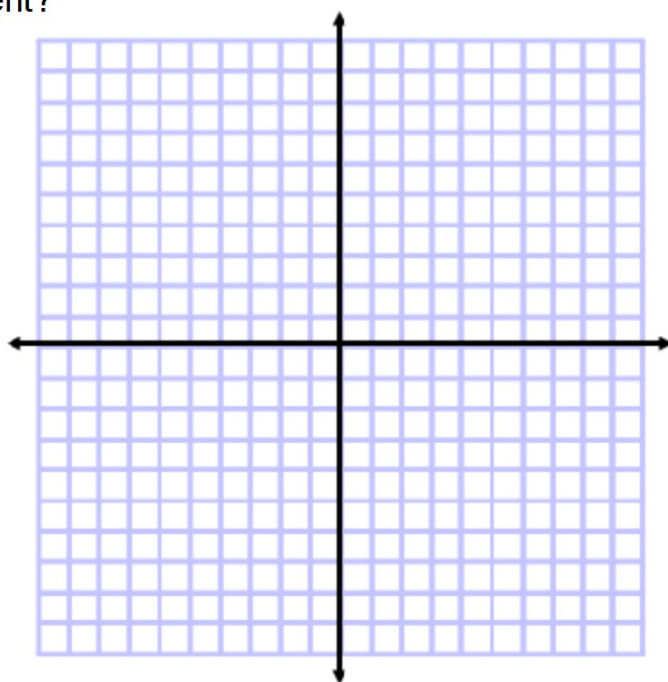


How is this problem different?

**Guided**Practice

**2A.**  $y > 3$

$y < 1$



**2B.**  $x + 6y \leq 2$   
 $y \geq -\frac{1}{6}x + 7$

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