

Algebra 1 5.6

Graph linear inequalities on
the coordinate plane

Solve inequalities by graphing
linear

boundary

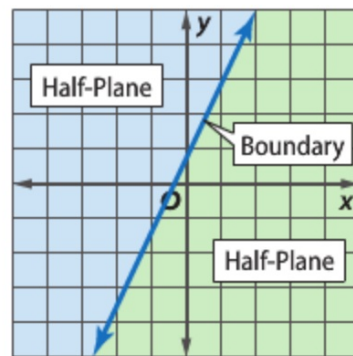
half-plane

open $>$ $<$ - - - - -

closed $\geq$ $\leq$ _____

test point *Shade T*

whiteboards *not shade F*



$$y = mx + B$$

$$2B. \quad \boxed{2x + 3y \geq 18}$$

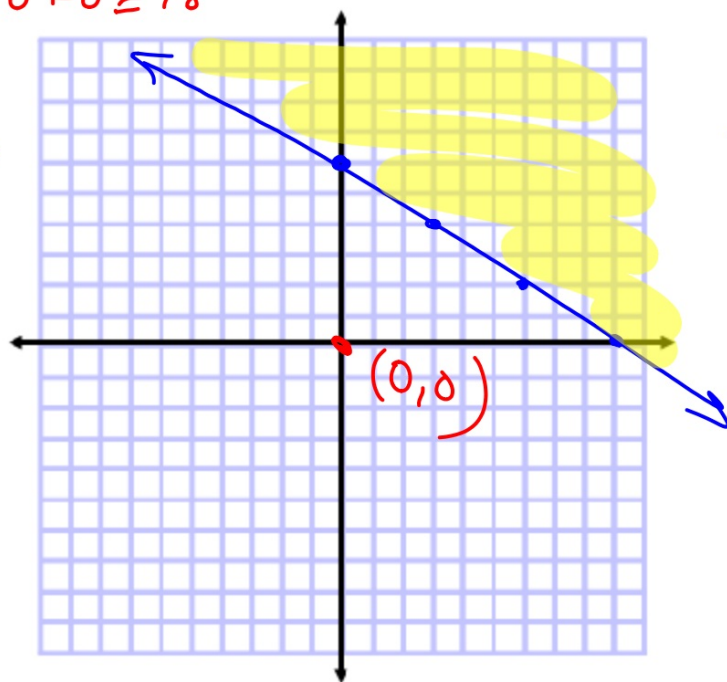
$$2 \cdot 0 + 3 \cdot 0 \geq 18$$

$$0 + 0 \geq 18$$

$$\frac{3y}{3} = \frac{-2x + 18}{3}$$

$$\boxed{y = -\frac{2}{3}x + 6}$$

$$\frac{-2}{3} \rightarrow$$



Special graphs

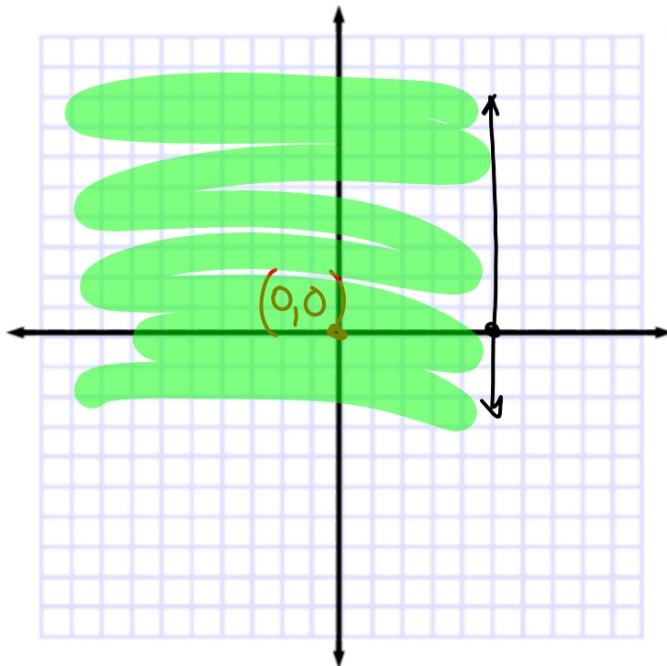
$y = \text{constant}$

$x = \text{constant}$

$x = 5$ vert.

$x \leq 5$

$0 \leq 5$



On a graph:

~~higher~~

~~lower~~

Example 3 Solve Inequalities From Graphs

Use a graph to solve $3x + 5 < 6$

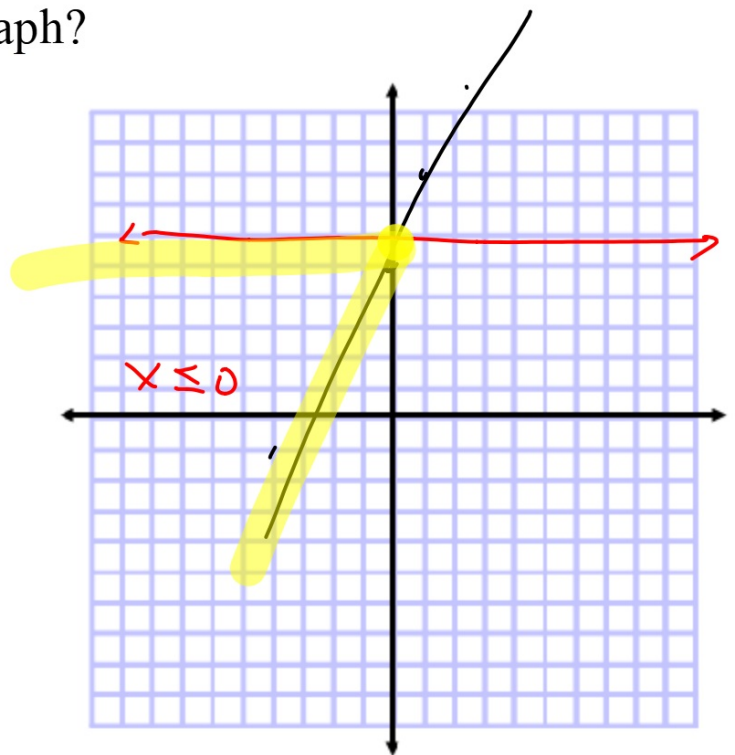
Graph $y = 3x + 5$ $x \leq 0$

Graph $y = 6$

Where is $3x + 5$ lower on the graph?

$$y = \underline{3x + 5}$$

$$y = 6$$



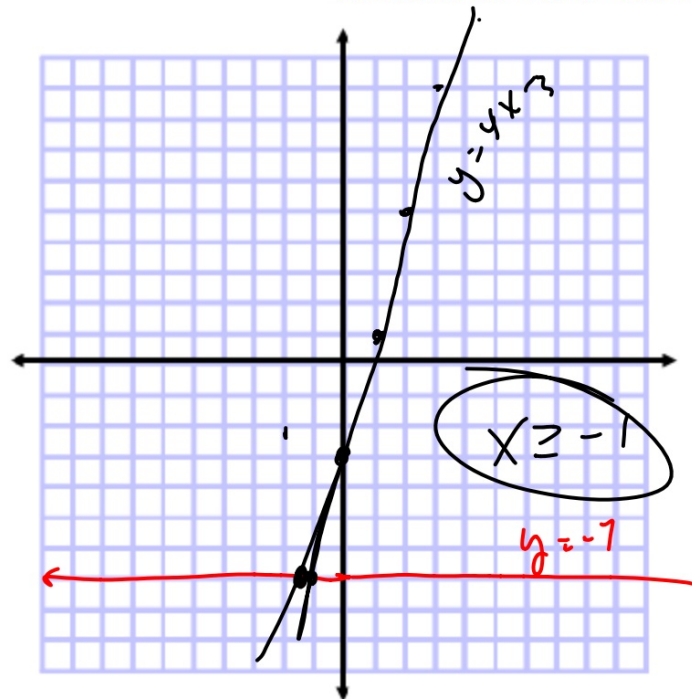
Use a graph to solve each inequality.

3A. $4x - 3 \geq -7$

↑

$y = 4x - 3$ $y = -7$

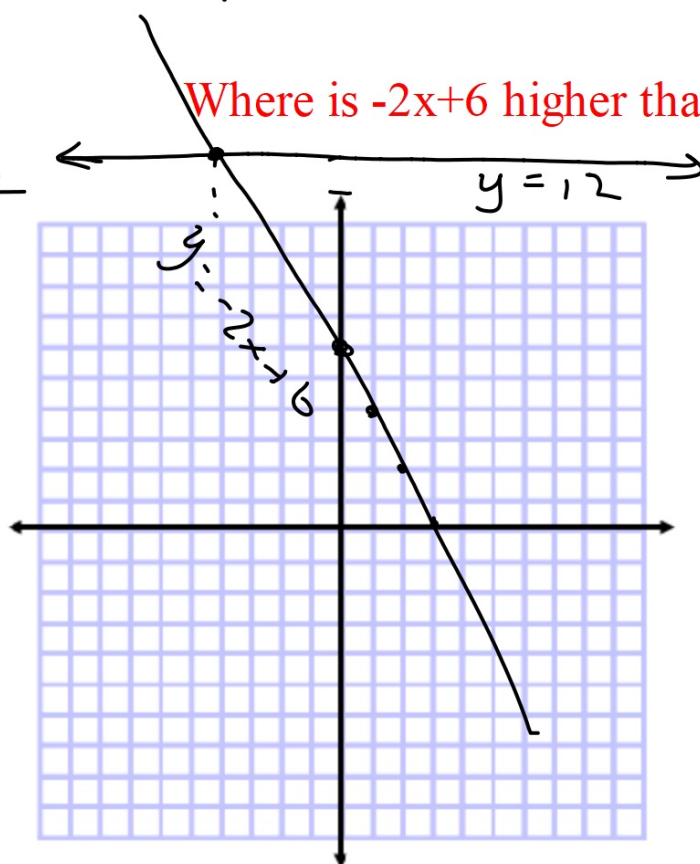
Where is $4x - 3$ higher than -7 ?



38. $-2x + 6 > 12$

$y = -2x + 6$ $y = 12$

$x < -4$



Where is $-2x+6$ higher than 12?

$$y \leq 2x + 3$$

$$2x + 3 > 6$$