Algebra 1 5.6

Graph linear inequalities on the coordinate plane

Solve inequalities by graphing

linear

boundary

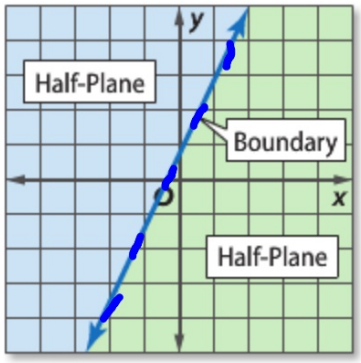
half-plane

open

closed

test point

whiteboards



Example 3 Solve Inequalities From Graphs

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

Graph y=3x + 5

Graph y=6

Where is 3x+5 lower on the graph (smaller y-coord = less) than 6

$y = 3x + 5$ $y = 6$

lower higher

$x < \frac{1}{3}$

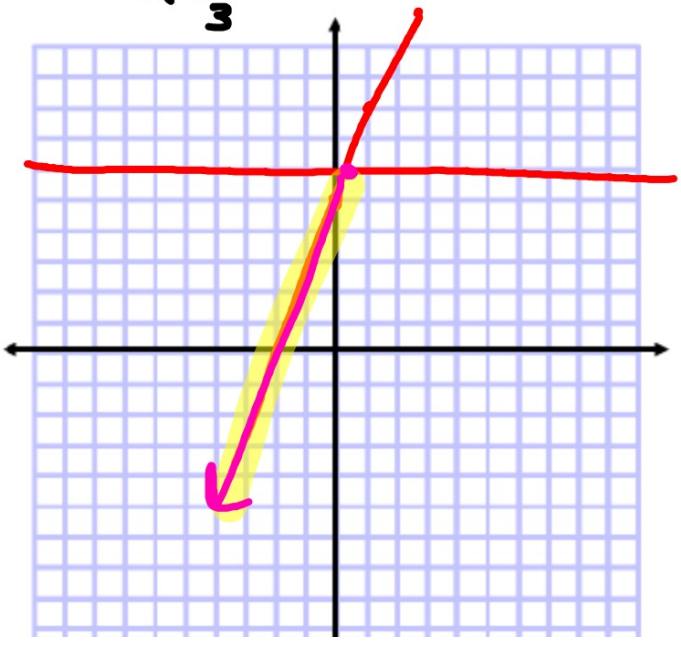
$3x + 5 < 6$

$-5 \quad -5$

$3x < 1$

$\frac{3x}{3} < \frac{1}{3}$

$x < \frac{1}{3}$



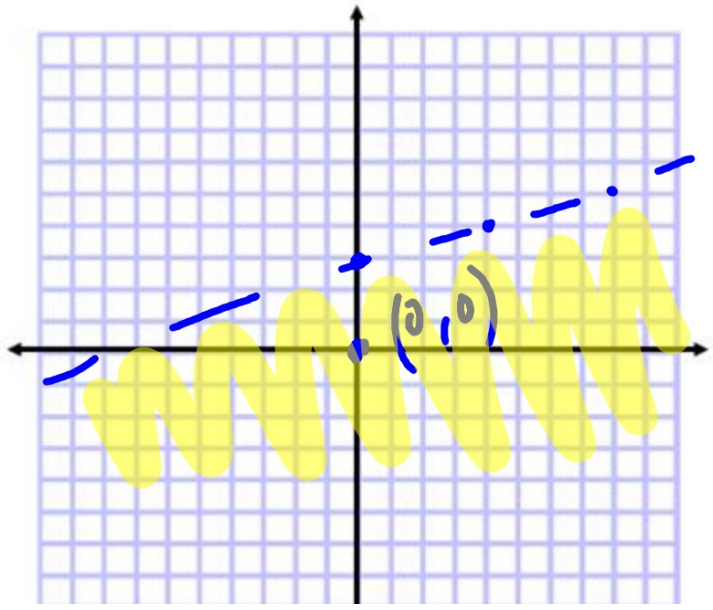
$0 < \frac{1}{4} \cdot 0 + 3$

$0 < 0 + 3$

$0 < 3$

$y < \frac{1}{4}x + 3$

$y = \frac{1}{4}x + 3$



$$2x + 3y \geq 9$$
$$-2x \qquad -2x$$

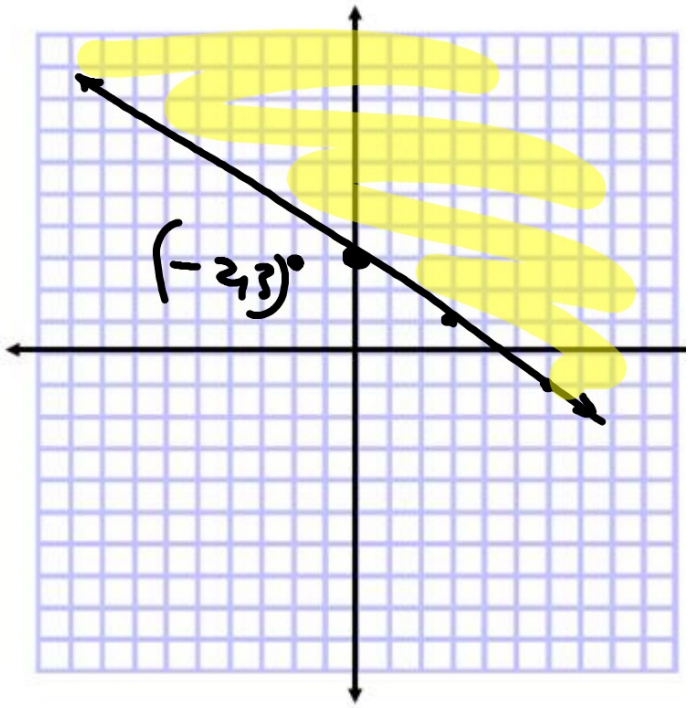
$$\frac{3y}{3} \geq -\frac{2x}{3} +$$

$$y \geq -\frac{2}{3}x + 3$$

$2 \cdot -2 + 3 \cdot 3 \geq 9$

$-4 + 9 \geq 9$

$5 \geq 9$



Use a graph to solve each inequality.

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

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

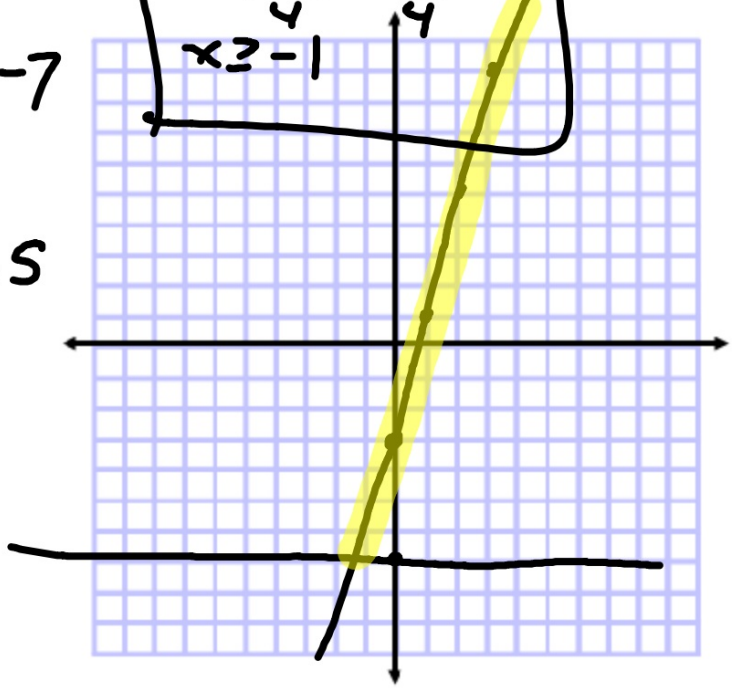
$x \geq -1.5$

$4x - 3 \geq -7$

$+3 \quad +3$

$\frac{4x}{4} \geq \frac{-4}{4}$

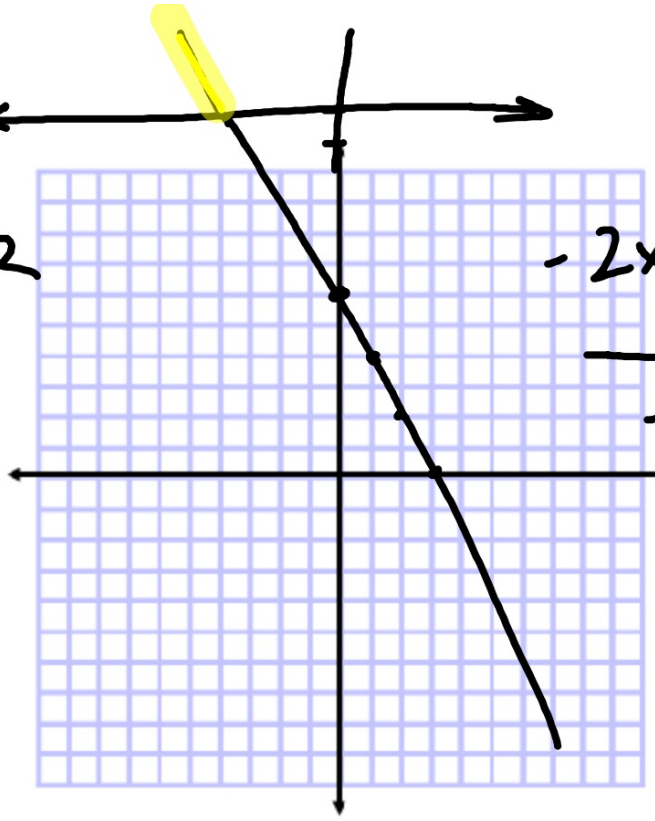
$x \geq -1$



3B. $-2x + 6 > 12$

$y = -2x + 6$

$y = 12$



$-2x + 6 > 12$

$-6 \quad -6$

$\frac{-2x}{-2} > \frac{6}{-2}$

$x < -3$

$\frac{-2x + 6}{1}$

$x < -4$