

Systems of Linear Inequalities

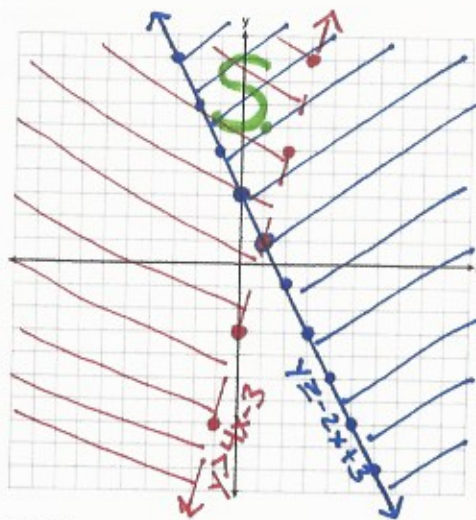
Line Type
$\leftarrow \text{---} < > \text{---} \rightarrow$
$\leftarrow \text{---} \leq \geq \text{---} \rightarrow$

Shading
$< \leq$ Below
$> \geq$ Above

Solutions
All points in the region shaded by **both** inequalities, including points on the solid line.

1.
 $y > 4x - 3$
 $y \geq -2x + 3$

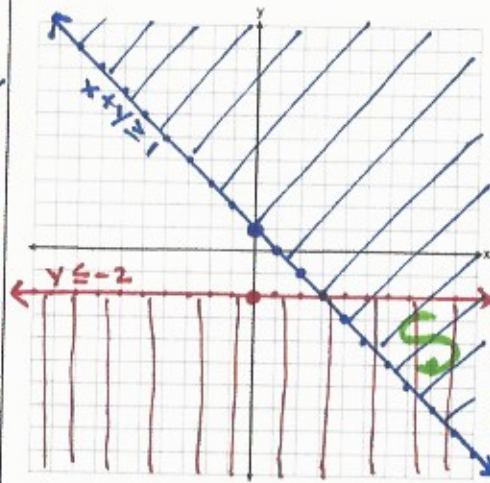
$y > 4x - 3$ $y \geq -2x + 3$
 $m = \frac{4}{1} \uparrow$ $m = -\frac{2}{1} \downarrow$
 $b = -3$ $b = 3$
 Shade UP Dashed Line Shade UP Solid Line



- Which point is in the solution set:
 (A) (-1, -5) (C) (4, 1)
 (B) (1, 6) (D) (-3, 3)

2.
 $y \leq -2$
 $x + y \geq 1$

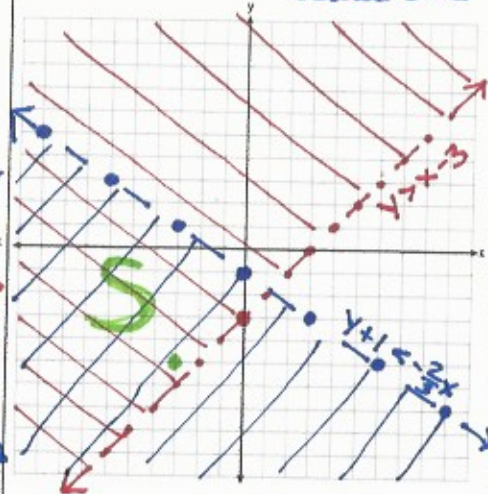
$y \leq -2$ $x + y \geq 1$
 * Horizontal Line $\frac{-x}{-x} \frac{-x}{-x}$
 Shade DOWN Solid Line $y \geq -x + 1$
 $m = -\frac{1}{1} \downarrow$
 $b = 1$
 Shade UP Solid Line



- Which point is in the solution set:
 (A) (8, -5) (C) (0, 0)
 (B) (7, 4) (D) (-2, 0)

3.
 $y > x - 3$
 $y + 1 < -\frac{2}{3}x$

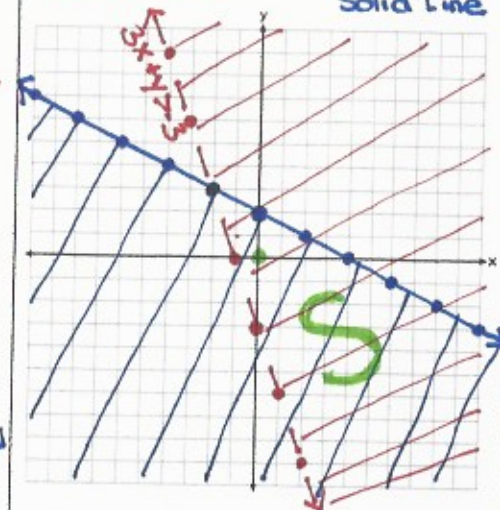
$y > x - 3$ $y + 1 < -\frac{2}{3}x$
 $m = \frac{1}{1} \uparrow$ $\frac{-1}{-1} \frac{-1}{-1}$
 $b = -3$ $y < -\frac{2}{3}x - 1$
 Shade UP Dashed Line $m = -\frac{2}{3} \downarrow$
 $b = -1$
 Shade DOWN Dashed Line



- Which point is in the solution set:
 (A) (0, 0) (C) (2, 3)
 (B) (3, -4) (D) (-3, -5)

4.
 $3x + y > -3$
 $x + 2y \leq 4$

$3x + y > -3$ $x + 2y \leq 4$
 $\frac{-3x}{-3x} \frac{-3x}{-3x}$ $\frac{-x}{-x} \frac{-x}{-x}$
 $y > -3x - 3$ $\frac{2y}{2} \leq \frac{-x+4}{2}$
 $m = -\frac{3}{1} \downarrow$ $y \leq -\frac{1}{2}x + 2$
 $b = -3$ $m = -\frac{1}{2} \downarrow$
 Shade UP Dashed Line $b = 2$
 Shade DOWN Solid Line



- Which point is in the solution set:
 (A) (1, 5) (C) (0, 0)
 (B) (-3, 1) (D) (0, -7)