



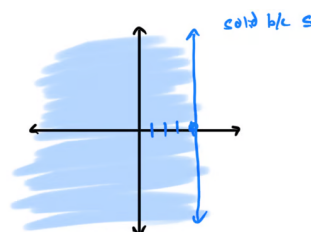
Watch on YouTube

Intro
 Same way as $y = mx + b$ except:
 ① $< , >$ dashed $\leq , \geq$ solid
 ② SHADE!
 Pick any point not on the line
 (A) TRUE - shade towards that point
 (B) FALSE - shade away from that point

Topic 1: Graphing a linear inequality in the plane: Vertical or horizontal line

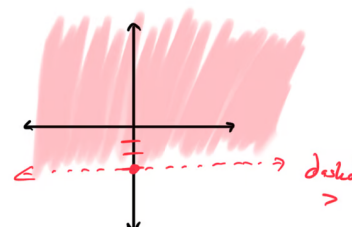
1. Graph the inequality $x \leq 4$ in the coordinate plane.

$x = \#$
 Vertical



- 1.
2. Graph the inequality $y > -3$ in the coordinate plane.

$y = \#$
 Horizontal

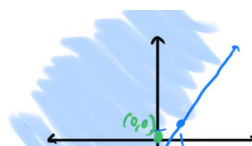


- 1.

Topic 2: Graphing a linear inequality in the plane: Slope-intercept form

1. Graph the inequality $y \geq 3x - 2$ in the coordinate plane.

$y \geq 3x - 2$ Solid
 $y = mx + b$
 $m = 3$ up 3



$$m = 1 \text{ right}$$

$$b = -2$$

to shade (0,0)

$$0 \geq 3(0) - 2$$

$$0 \geq -2$$

$$yes$$



- 1.
2. Graph the inequality $y < -2x + 4$ in the coordinate plane.

$$y < -2x + 4 \text{ dashed}$$

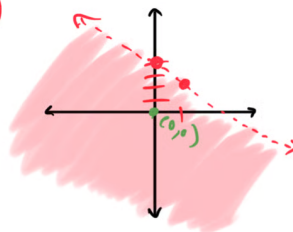
$$m = -\frac{2}{1} \text{ down 2 right 1}$$

$$b = 4$$

$$0 < -2(0) + 4$$

$$0 < 4$$

$$yes$$



- 1.

Topic 3: Graphing a linear inequality in the plane: Standard form

1. Graph the inequality $3x + 2y \leq 12$ in the coordinate plane.

$$3x + 2y \leq 12 \text{ solid}$$

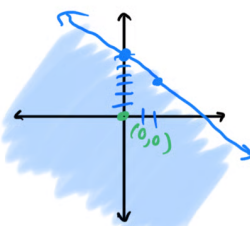
$$-3x$$

$$\frac{2y}{2} \leq \frac{-3x + 12}{2}$$

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

$$m = -\frac{3}{2} \text{ down 3 right 2}$$

$$b = 6$$



$$3(0) + 2(0) \leq 12$$

$$0 \leq 12$$

$$yes$$

- 1.
2. Graph the inequality $5x - y > 10$ in the coordinate plane.

$$5x - y > 10 \text{ dashed}$$

$$-5x$$

$$\frac{-y}{-1} > \frac{-5x + 10}{-1}$$

$$y < 5x - 10$$

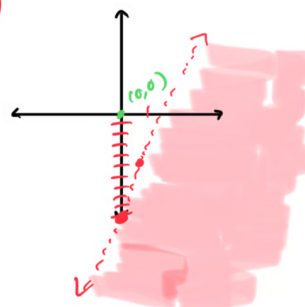
$$m = \frac{5}{1} \text{ up 5 right 1}$$

$$b = -10$$

$$5(0) - 0 > 10$$

$$0 > 10$$

$$No$$



- 1.

Topic 4: Graphing a system of two linear inequalities: Basic

1. Graph the system of inequalities: $y \leq 2x + 3$ and $y \geq -x - 1$ in the coordinate plane.

$$y \leq 2x + 3 \text{ solid}$$

$$m = \frac{2}{1} \text{ up 2 right 1}$$

$$b = 3$$

shade:

$$0 \leq 2(0) + 3$$

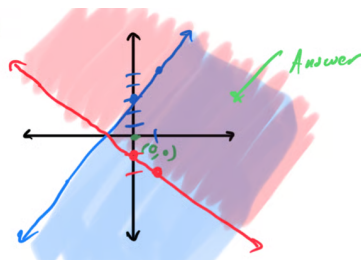
$$y \geq -x - 1 \text{ solid}$$

$$m = -\frac{1}{1} \text{ down 1 right 1}$$

$$b = -1$$

shade:

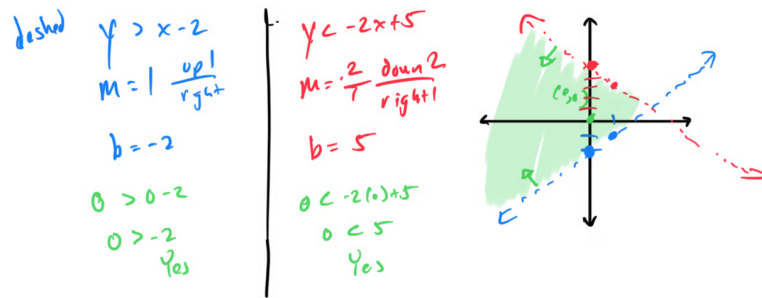
$$0 \geq -0 - 1$$



$$0 \leq 3 \quad | \quad 0 \geq -1$$

Yes

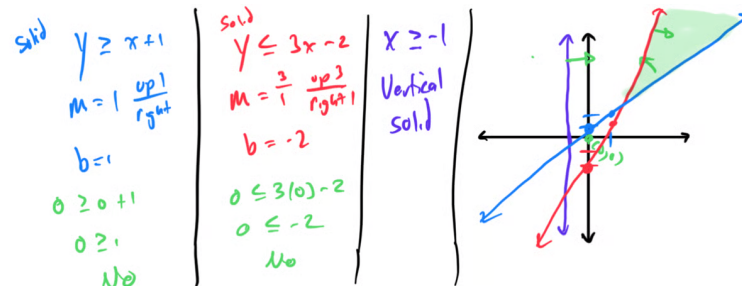
- 1.
2. Graph the system of inequalities: $y > x - 2$ and $y < -2x + 5$ in the coordinate plane.



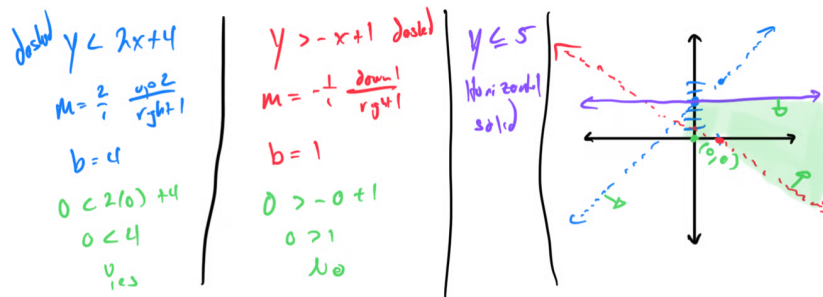
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Topic 5: Graphing a system of three linear inequalities

1. Graph the system of inequalities: $y \geq x + 1$, $y \leq 3x - 2$, and $x \geq -1$ in the coordinate plane.



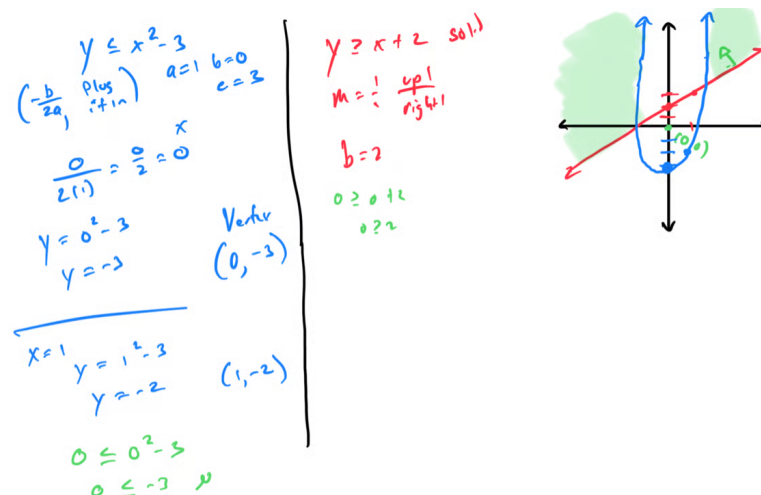
- 1.
2. Graph the system of inequalities: $y < 2x + 4$, $y > -x + 1$, and $y \leq 5$ in the coordinate plane.



- 1.

Topic 6: Graphing a system of nonlinear inequalities: Problem type 1

1. Graph the system of inequalities: $y \leq x^2 - 3$ and $y \geq x + 2$ in the coordinate plane.



- 1.
2. Graph the system of inequalities: $y > x^2 + x - 6$ and $y < 2x - 1$ in the coordinate plane.

