

LINEAR INEQUALITIES

To graph inequalities in the form:

$$y < mx + b$$

$$y > mx + b$$

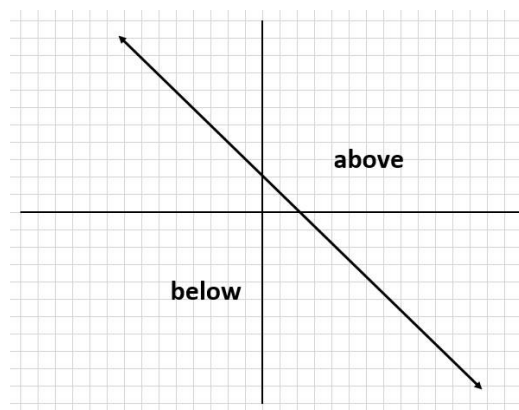
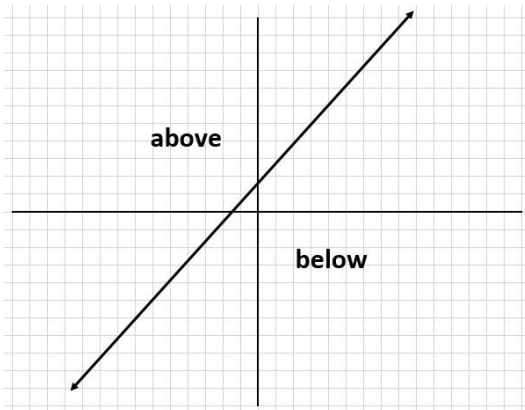
$$y \leq mx + b$$

$$y \geq mx + b$$

You will need to first graph the boundary line. For the inequality signs $<$ or $>$, use a dotted (dashed) line. For the inequality signs \leq or \geq , use a solid line.

You will shade above the boundary line for $>$ or \geq .

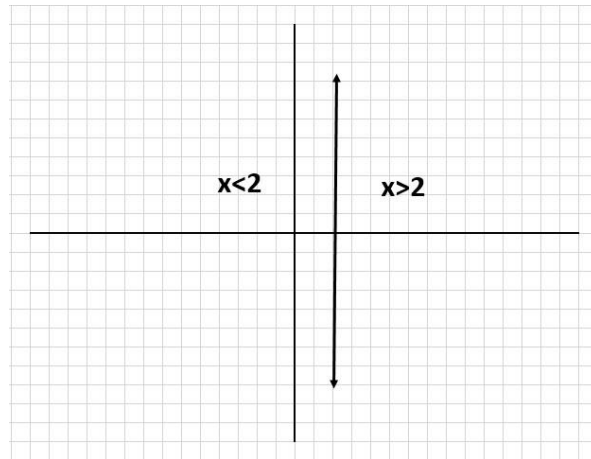
You will shade below the boundary line for $<$ or \leq .



Vertical line $x = 2$

$>$ means shade to the right of the line

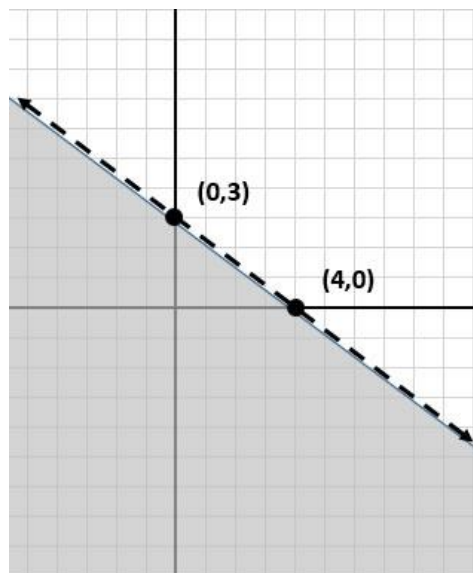
$<$ means shade to the left of the line



Ex1 Graph $3x + 4y < 12$

$$\frac{-3x}{4} < \frac{-3x + 12}{4}$$

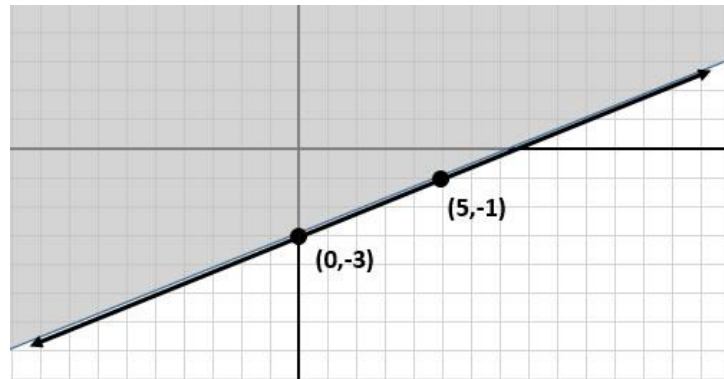
$$y < -\frac{3}{4}x + 3$$



Ex2 Graph $2x - 5y \leq 15$

$$\begin{aligned} \frac{-2x}{-5} & \quad \frac{-2x}{-5} \\ -5y & \leq -2x + 15 \end{aligned}$$

$$y < \frac{2}{5}x - 3$$



Ex3 Graph $3x - 2 \leq 5$

$$\begin{aligned} \frac{+2}{3} & \quad \frac{+2}{3} \\ 3x & \leq 7 \end{aligned}$$

$$x \leq \frac{7}{3}$$

$$x \leq 2\frac{1}{3}$$

