

LINEAR INEQUALITIES IN ONE VARIABLE The steps for graphing a linear inequality in two variables can be used to graph a linear inequality in one variable in a coordinate plane.

The boundary line for an inequality in one variable is either vertical or horizontal. When testing a point to determine which half-plane to shade, do the following:

- If an inequality has only the variable x , substitute the x -coordinate of the test point into the inequality.
- If an inequality has only the variable y , substitute the y -coordinate of the test point into the inequality.

EXAMPLE 4 Graph a linear inequality in one variable

Graph the inequality $y \geq -3$.

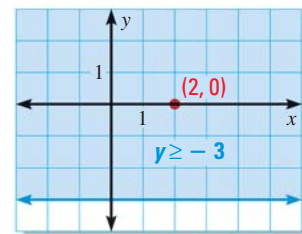
Solution

STEP 1 Graph the equation $y = -3$.
The inequality is \geq , so use a solid line.

STEP 2 Test $(2, 0)$ in $y \geq -3$. You substitute only the y -coordinate, because the inequality does not have the variable x .

$$0 \geq -3 \quad \checkmark$$

STEP 3 Shade the half-plane that contains $(2, 0)$, because $(2, 0)$ is a solution of the inequality.



EXAMPLE 5 Graph a linear inequality in one variable

Graph the inequality $x < -1$.

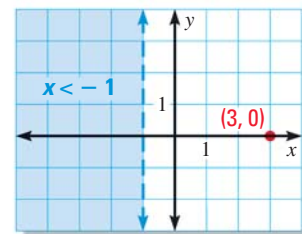
Solution

STEP 1 Graph the equation $x = -1$.
The inequality is $<$, so use a dashed line.

STEP 2 Test $(3, 0)$ in $x < -1$. You substitute only the x -coordinate, because the inequality does not have the variable y .

$$3 < -1 \quad \times$$

STEP 3 Shade the half-plane that does *not* contain $(3, 0)$, because $(3, 0)$ is not a solution of the inequality.



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✓ GUIDED PRACTICE for Examples 4 and 5

Graph the inequality.

5. $y > 1$

6. $y \leq 3$

7. $x < -2$