

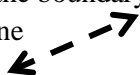

**CW 2**

**Algebra Foundations**

**Graphing a Linear Inequality in Two Variables Notes**

**Graphing a Linear Inequality in Two Variables**

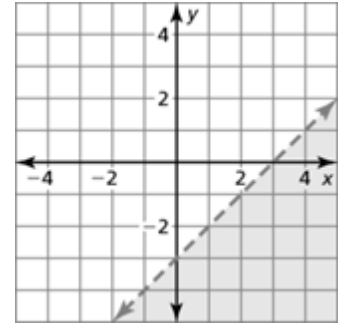
**Step 1** Graph the boundary line for the inequality.

Use a dashed line  for  $<$  or  $>$ . Use a solid line  for  $\leq$  or  $\geq$ .

**Step 2** Test a point that is not on the boundary line to determine whether it is a solution of the inequality.

**Step 3** When a test point is a solution, shade the half-plane that contains the point. When the test point is *not* a solution, shade the half-plane that does *not* contain the point.

Example: Here is the graph of  $y < x - 3$



In Exercises 1–3, tell whether the ordered pair is a solution of the inequality.

1.  $5x + y < 7$ ;  $(2, -2)$

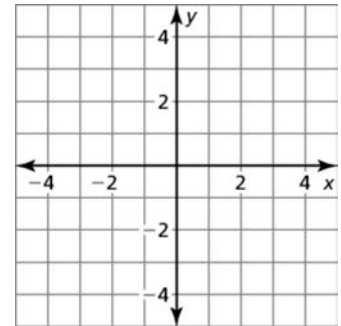
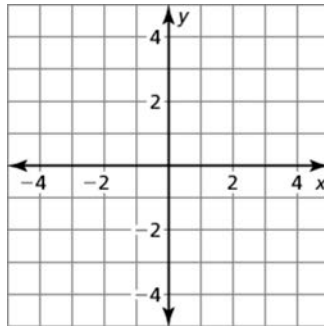
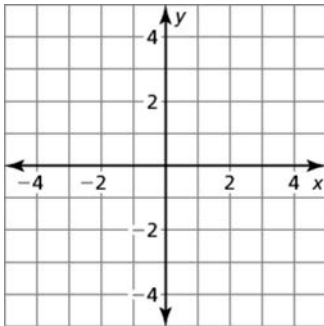
2.  $-x - 2y \geq 5$ ;  $(-2, -3)$

In Exercises 3–12, graph the line. Then graph the linear inequality in a coordinate plane.

3.  $y = 4$

$y \leq 4$

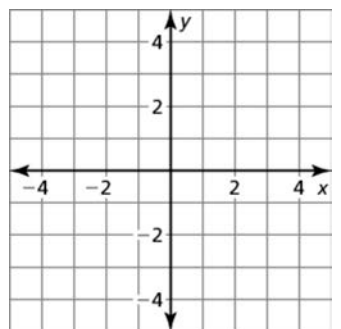
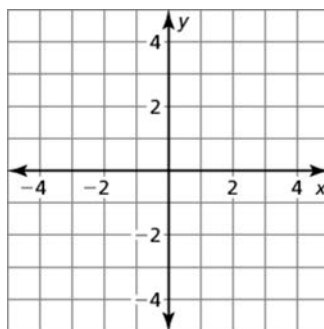
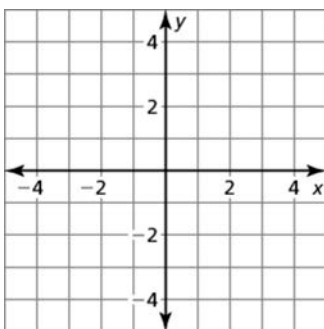
$y > 4$



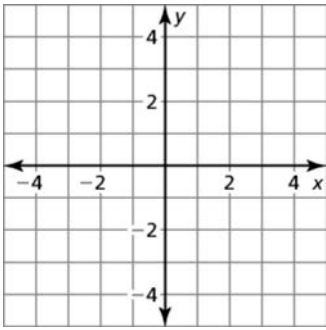
4.  $x = -1$

$x < -1$

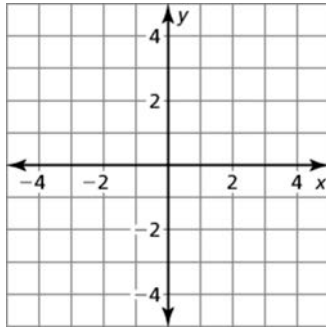
$x \geq -1$



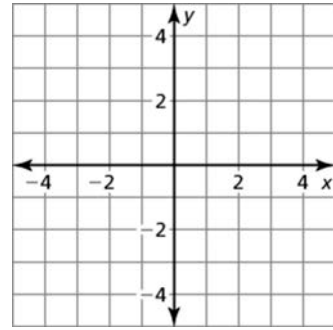
5.  $y = 3x + 1$



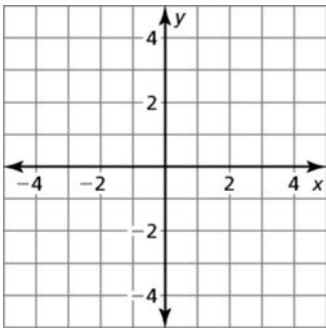
$y \leq 3x + 1$



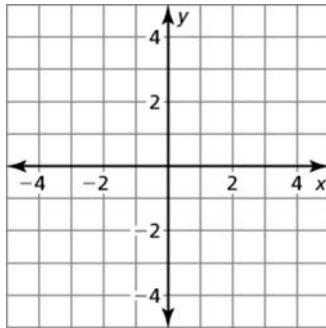
$y > 3x + 1$



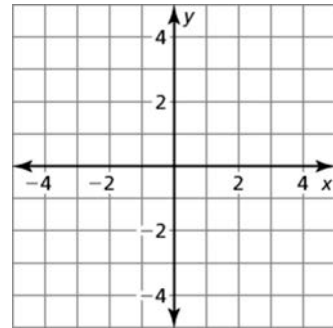
6.  $y = -x + 1$



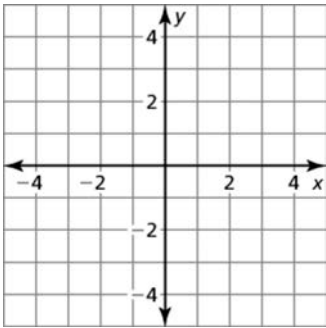
$y \geq -x + 1$



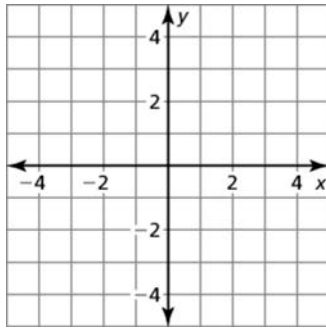
$y \leq -x + 1$



7.  $x - y = 2$



$x - y < 2$



$x - y \geq 2$

