

Questions

1. Graph the region described by $y > 2 - 3x$.
2. Graph the region described by $2x - y \geq 3$.
3. Graph the region described by $y < -\frac{1}{2}x$.
4. Graph the region described by $3x + 4y - 8 \leq 0$.

Solutions

1. First, sketch $y = 2 - 3x$, and draw as a dashed line since we don't have the equality in the inequality.

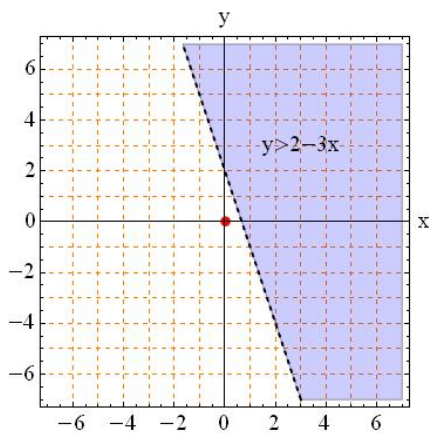
You can sketch this using techniques from previous sections (slope and y -intercept, or getting two points).

Test Point: $(0, 0)$, colored red in diagram below.

$$y > 2 - 3x$$

$$(0) > 2 - 3(0)$$

$$0 > 2 \text{ FALSE, so shade side opposite the test point.}$$



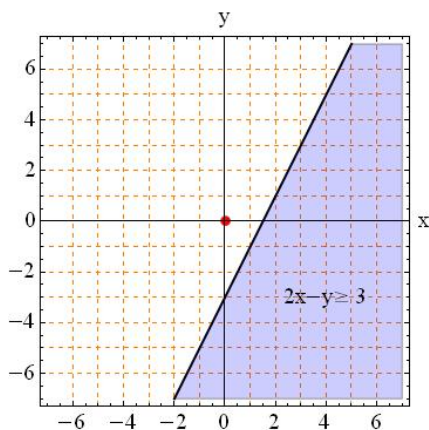
2. First, sketch $2x - y = 3$, and draw as a solid line since we have the equality in the inequality.

Test Point: $(0, 0)$, colored red in diagram below.

$$2x - y \geq 3$$

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

$$0 \geq 3 \text{ FALSE, so shade side opposite the test point.}$$



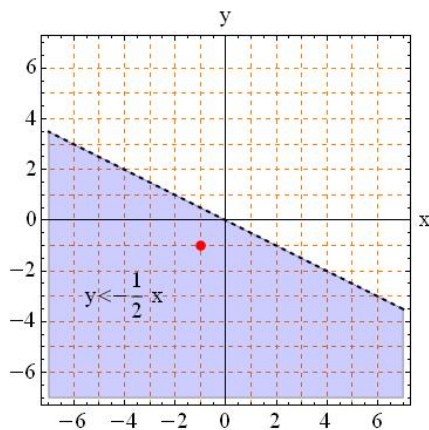
3. First, sketch $y = -\frac{1}{2}x$, and draw as a dashed line since we do not have the equality in the inequality.

Test Point: $(-1, -1)$, colored red in diagram below.

$$y < -\frac{1}{2}x$$

$$-1 < -\frac{1}{2}(-1)$$

$$-1 < \frac{1}{2} \text{ TRUE, so shade side with the test point.}$$



4. First, sketch $3x + 4y - 8 = 0$, and draw as a solid line since we have the equality in the inequality.

Test Point: $(0, 0)$, colored red in diagram below.

$$3x + 4y - 8 \leq 0$$

$$3(0) + 4(0) - 8 \leq 0$$

$$-8 \leq 0 \text{ TRUE, so shade side with the test point.}$$

