Name _____ Class _____ Date _____

Reteaching 6-6

Systems of Linear Inequalities

OBJECTIVE: Solving systems of linear inequalities by graphing

MATERIALS: Graph paper, two highlighting markers in colors that combine to make a third color (pink and yellow, for example)

- When you graph the first inequality, mark the solution area with one color. Then graph the second inequality and mark the solution area with the other color. The common solution for the two inequalities appears where the two colors combine to make a third color.
- To graph inequalities, use the same strategies you use to graph equations.
- The boundary line is solid if the inequality has an equal sign (indicating that the points on the line are part of the solution) and dashed if the inequality does not have an equal sign.

Example

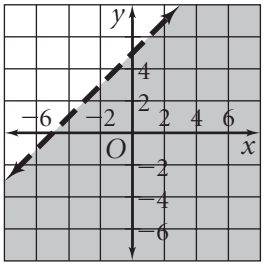
Solve by graphing.

$y - x < 5$
$y + 6 \geq 2x$

a. Rewrite the inequalities in slope-intercept form.
$y < x + 5$
$y \geq 2x - 6$

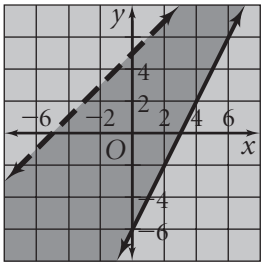
b. Graph the boundary line, $y = x + 5$ using a dashed line.

c. Test the inequality $y - x < 5$ using the point (0, 0). Since the inequality is true for (0, 0), shade the region containing (0, 0) yellow.



d. Graph the boundary line, $y = 2x - 6$ using a solid line.

e. Test the inequality $y + 6 \geq 2x$ using the point (0, 0). It is true; therefore, shade the region containing (0, 0) pink, including the boundary line.



f. The region that appears orange is the solution region.

Exercises

Follow steps a–f above to graph each system of linear inequalities.

1. $y < 4x - 7$
$y > \frac{1}{2}x + 4$

2. $y - 4 < x$
$3y < x + 6$

3. $2x + 3y > 6$
$x - y \leq 0$

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