

3.23

Graphing a System of Linear Inequalities

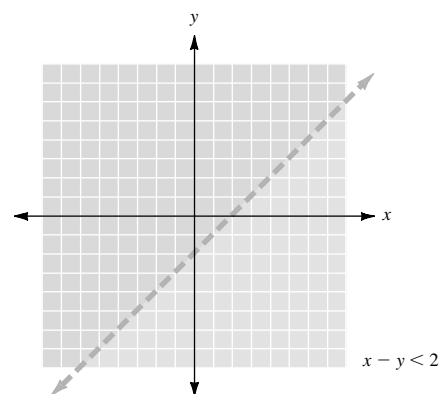
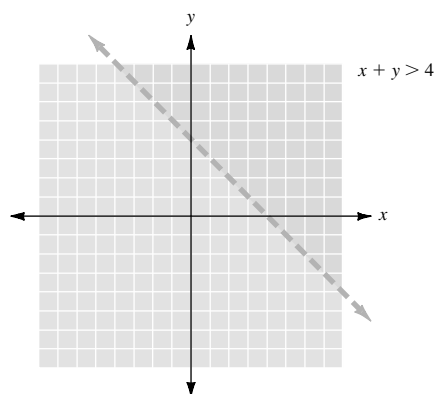
• Example 1

Solve the following system of linear inequalities by graphing.

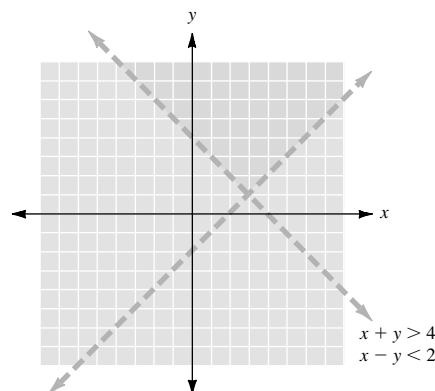
$$x + y > 4$$

$$x - y < 2$$

We begin by drawing the dashed line of the equation $x + y = 4$. The dashed line indicates that the points of that line are not part of the solution to $x + y > 4$. We proceed similarly with the inequality $x - y < 2$, drawing the dashed line of the equation $x - y = 2$.



We combine the two graphs and use $(0, 0)$ as a test point. $(0, 0)$ does not satisfy either inequality. Thus, the part of the plane that is above both lines is shaded and represents the solution of the system of inequalities.



● ● ● CHECK YOURSELF 1

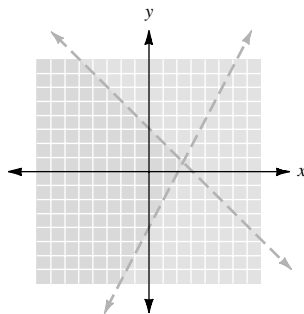
Solve the following system of linear inequalities by graphing.

$$2x - y < 4$$

$$x + y < 3$$

● ● ● CHECK YOURSELF ANSWER

1.



3.23 Exercises

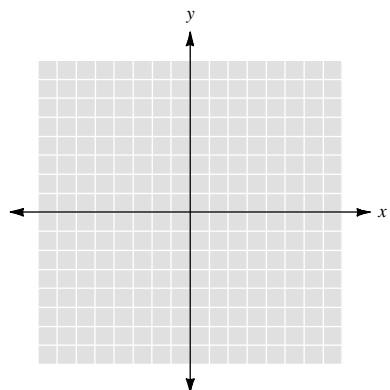
Name _____

Section _____

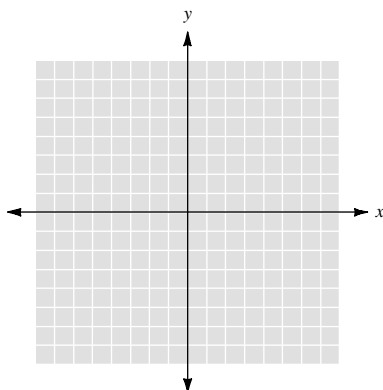
Date _____

Solve each system by graphing

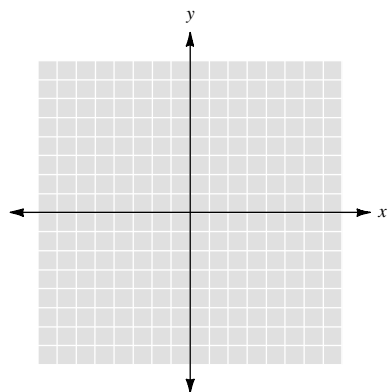
1. $x + 2y \leq 4$
 $x - y \geq 1$



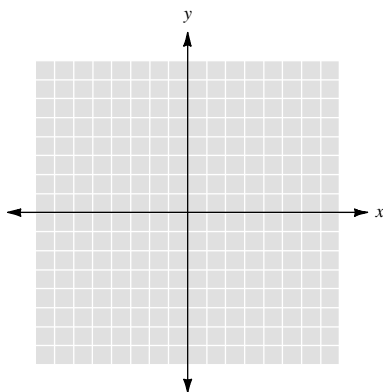
2. $3x - y > 6$
 $x + y < 6$



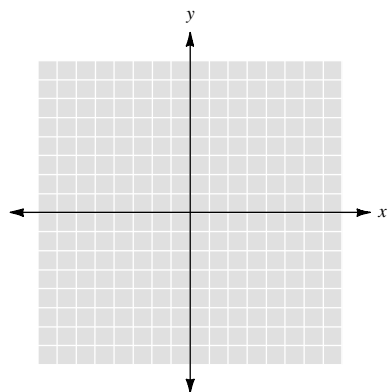
3. $3x + y < 6$
 $x + y > 4$



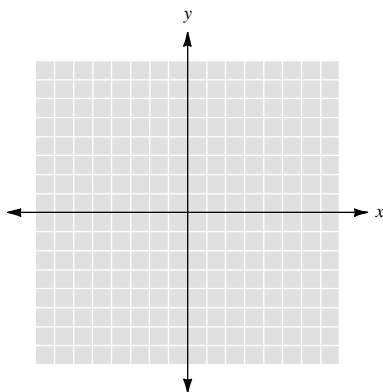
4. $2x + y \geq 8$
 $x + y \geq 4$



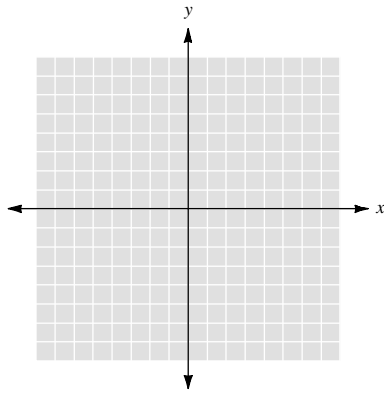
5. $x + 3y \leq 12$
 $2x - 3y \leq 6$



6. $x - 2y > 8$
 $3x - 2y > 12$



7. $3x + 2y \leq 12$
 $x \geq 2$



8. $2x + y \leq 6$
 $y \geq 1$

