

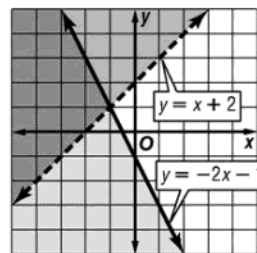
7-5 Study Guide and Intervention

Graphing Systems of Inequalities

Systems of Inequalities The solution of a **system of inequalities** is the set of all ordered pairs that satisfy both inequalities. If you graph the inequalities in the same coordinate plane, the solution is the region where the graphs overlap.

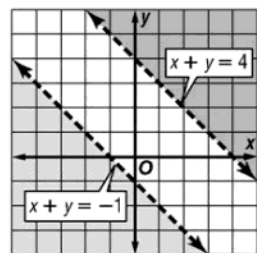
Example 1 Solve the system of inequalities by graphing.
 $y > x + 2$
 $y \leq -2x - 1$

The solution includes the ordered pairs in the intersection of the graphs. This region is shaded at the right. The graphs of $y = x + 2$ and $y = -2x - 1$ are boundaries of this region. The graph of $y = x + 2$ is dashed and is not included in the graph of $y > x + 2$.



Example 2 Solve the system of inequalities by graphing.
 $x + y > 4$
 $x + y < -1$

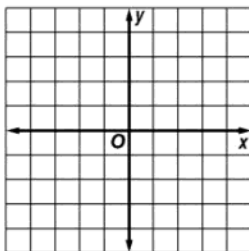
The graphs of $x + y = 4$ and $x + y = -1$ are parallel. Because the two regions have no points in common, the system of inequalities has no solution.



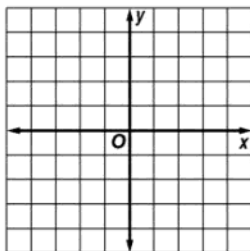
Exercises

Solve each system of inequalities by graphing.

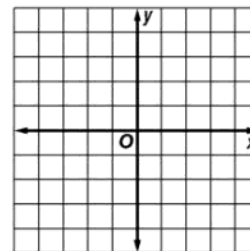
1. $y > -1$
 $x < 0$



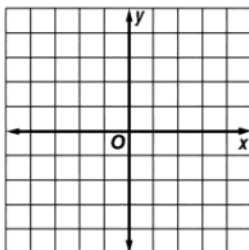
2. $y > -2x + 2$
 $y \leq x + 1$



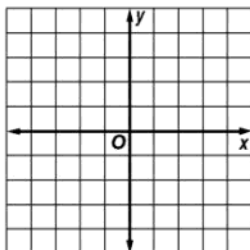
3. $y < x + 1$
 $3x + 4y \geq 12$



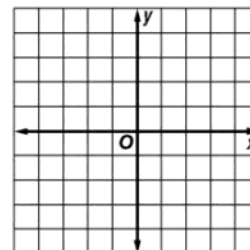
4. $2x + y \geq 1$
 $x - y \geq -2$



5. $y \leq 2x + 3$
 $y \geq -1 + 2x$



6. $5x - 2y < 6$
 $y > -x + 1$



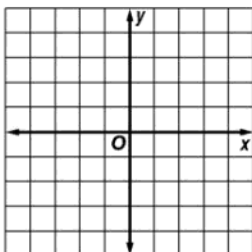
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Skills Practice

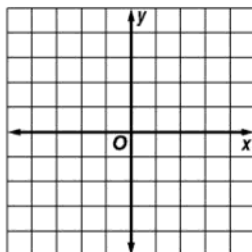
Graphing Systems of Inequalities

Solve each system of inequalities by graphing.

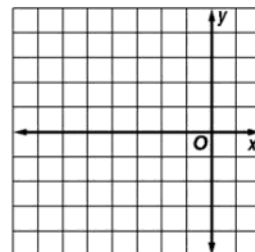
$$\begin{aligned} 1. & x > -1 \\ & y \leq -3 \end{aligned}$$



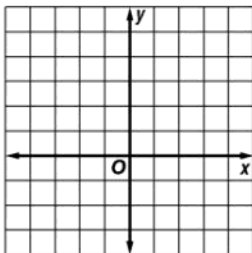
$$\begin{aligned} 2. & y > 2 \\ & x < -2 \end{aligned}$$



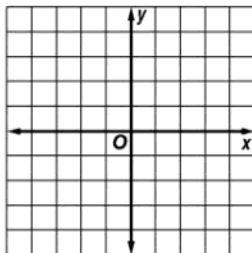
$$\begin{aligned} 3. & y > x + 3 \\ & y \leq -1 \end{aligned}$$



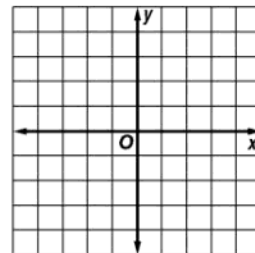
$$\begin{aligned} 4. & x < 2 \\ & y - x \leq 2 \end{aligned}$$



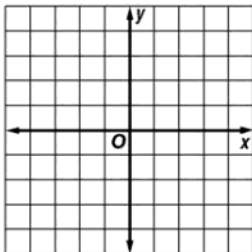
$$\begin{aligned} 5. & x + y \leq -1 \\ & x + y \geq 3 \end{aligned}$$



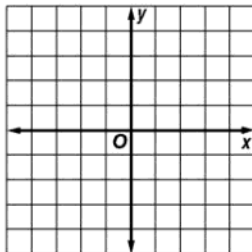
$$\begin{aligned} 6. & y - x > 4 \\ & x + y > 2 \end{aligned}$$



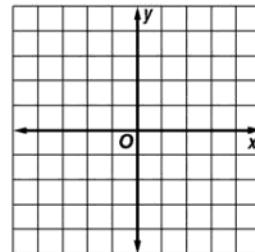
$$\begin{aligned} 7. & y > x + 1 \\ & y \geq -x + 1 \end{aligned}$$



$$\begin{aligned} 8. & y \geq -x + 2 \\ & y < 2x - 2 \end{aligned}$$



$$\begin{aligned} 9. & y < 2x + 4 \\ & y \geq x + 1 \end{aligned}$$



Write a system of inequalities for each graph.

