

**Practice 3-3****Systems of Inequalities**

Solve each system of inequalities by graphing.

1.  $\begin{cases} y > x + 2 \\ y \leq -x + 1 \end{cases}$
  2.  $\begin{cases} y \leq x + 3 \\ y \geq x + 2 \end{cases}$
  3.  $\begin{cases} x + y < 5 \\ y < 3x - 2 \end{cases}$
  4.  $\begin{cases} x - 2y < 3 \\ 2x + y > 8 \end{cases}$
  5.  $\begin{cases} -3x + y < 3 \\ x + y > -1 \end{cases}$
  6.  $\begin{cases} x + 2y > 4 \\ 2x - y > 6 \end{cases}$
  7.  $\begin{cases} 2x \geq y + 3 \\ x < 3 - 2y \end{cases}$
  8.  $\begin{cases} 3 < 2x - y \\ x - 3y \leq 4 \end{cases}$
  9.  $\begin{cases} y \geq 2 \\ y \geq |x| \end{cases}$
  10.  $\begin{cases} y < x - 3 \\ y \geq |x - 4| \end{cases}$
  11.  $\begin{cases} -2x + y > 1 \\ y > |x| \end{cases}$
  12.  $\begin{cases} y < -3 \\ y < -|x| \end{cases}$
13. Suppose you are buying two kinds of notebooks for school. A spiral notebook costs \$2, and a three-ring notebook costs \$5. You must have at least six notebooks. The cost of the notebooks can be no more than \$20.
- a. Write a system of inequalities to model the situation.
  - b. Graph and solve the system.
14. A camp counselor needs no more than 30 campers to sign up for two mountain hikes. The counselor needs at least 10 campers on the low trail and at least 5 campers on the high trail.
- a. Write a system of inequalities to model the situation.
  - b. Graph and solve the system.

Solve each system of inequalities by graphing.

15.  $\begin{cases} 2x + y > 2 \\ x - y \geq 3 \end{cases}$
16.  $\begin{cases} y \leq 3x \\ y \geq -2x + 2 \end{cases}$
17.  $\begin{cases} y < 5x - 1 \\ y \geq 7 - 3x \end{cases}$
18.  $\begin{cases} y \geq -2x + 2 \\ y \leq 3x \end{cases}$
19.  $\begin{cases} x + y > 2 \\ 2x - y < 1 \end{cases}$
20.  $\begin{cases} y > 3x + 2 \\ y \leq -2x + 1 \end{cases}$
21.  $\begin{cases} y \geq -2 \\ y \leq -|x + 3| \end{cases}$
22.  $\begin{cases} y < x + 3 \\ y > |x - 1| \end{cases}$
23.  $\begin{cases} y > x \\ y < |x + 2| \end{cases}$