

CHAPTER 3 TEST Systems of Equations & Inequalities

Solve each system of equations.

1.
$$\begin{cases} 3x + 2y = 6 \\ x - 2y = 10 \end{cases}$$

2.
$$\begin{cases} 4x + 7y = 28 \\ y = 2x - 14 \end{cases}$$

3.
$$\begin{cases} 4x + 5y = -12 \\ 3x - 4y = 22 \end{cases}$$

4.
$$\begin{cases} 3y - 2x = 7 \\ 2y - 2 = 4x \end{cases}$$

5. The Village Inn offers two special packages. For two nights and three meals the cost is \$158. For two nights and five meals the cost is \$181. Write and solve a system of linear equations to find the costs per night and per meal.
6. **Smart Shopping** An ordinary refrigerator costs \$489 and has an estimated annual operating cost of \$84. An energy-saving model costs \$599, with an estimated annual cost of \$61. After how many years will the costs to buy and to operate the two models be equal?
7. Each week you must do a minimum of 18 hours of homework. Participation in sports requires at least 12 hours per week. You have no more than 35 hours per week in total to devote to these activities.
- Write a system of inequalities to model the situation.
 - Graph and solve the system.

Solve each system of inequalities by graphing.

8.
$$\begin{cases} y \leq -2 \\ y > |x + 1| \end{cases}$$

9.
$$\begin{cases} 8x + 2y > 5 \\ x + 2y \leq -3 \end{cases}$$

10.
$$\begin{cases} 4y < 3x - 1 \\ y > 2|x| - 3 \end{cases}$$