

## 8.1 Practice Set

1. What is the relationship between the lines of a linear system that has no solution?
2. Give a geometric interpretation of the solution of a system of linear equations.
3. If you are given a point, how can you test it to see if it is a solution to a system of equations?
4. Why is graphing a system an insufficient method to solve a system of linear equations?

Solve each of the following systems of equations. If the system is dependent or inconsistent, state this.

5. 
$$\begin{cases} m - n = 8 \\ 3m - 2n = 21 \end{cases}$$

6. 
$$\begin{cases} 2x - 3y = 6 \\ 4x - 6y = 8 \end{cases}$$

7. 
$$\begin{cases} a + b = 4 \\ 3a + b = 6 \end{cases}$$

8. 
$$\begin{cases} 9x - 4y = 22 \\ 5x + 2y = 8 \end{cases}$$

9. 
$$\begin{cases} 5x + 3y = 2 \\ -10x - 6y = -4 \end{cases}$$

10. 
$$\begin{cases} \frac{3}{4}r - \frac{2}{5}t = 4 \\ \frac{1}{2}r + t = 9 \end{cases}$$

$$11. \quad \begin{cases} -0.2x + 0.3y = 3.9 \\ 1.4x - 2y = -26.4 \end{cases}$$

$$12. \quad \begin{cases} 4x + 5y = 12 \\ 7x + 3y = 6 \end{cases}$$

$$13. \quad \begin{cases} 13s + 9t = 15 \\ -26s + 18t = 30 \end{cases}$$

$$14. \quad \begin{cases} -\frac{4}{5}x + \frac{7}{8}y = \frac{3}{2} \\ 2x + 4y = 9 \end{cases}$$

$$15. \quad \begin{cases} 14m - 6y = 4 \\ 21m - 9y = 6 \end{cases}$$

Set up a system of equations for each of the following problems. Do not solve.

16. Kari bought a combination of sandwiches at the local deli for her team at work. Ham sandwiches cost \$5.50 each while turkey sandwiches cost \$4.75. If Kari has a team of 8 people including herself she spent \$40.25 on all 8 sandwiches, how many of each type of sandwich did she buy?
17. Two types of flour are to be mixed to make a special baking blend for a local bakery. If the first type costs \$1.50 per pound and the second type costs \$2.25 per pound, how many pounds of each will it take to make a 5 pound bag which costs \$2.00 per pound?
18. Find how many gallons of fruit punch at \$0.89 per gallon should be mixed with orange juice at \$2.99 per gallon in order to make a juice drink which costs \$1.58 per gallon?
19. Two contractors are hired to work together on a 12 hour job. Their rates are \$62.00 per hour and \$67.00 per hour, respectively. How many hours should they each be given in order to obtain if the budget for the job is \$768.00?

20. A pet motel, which boards dogs and cats while their owners are away, has a maximum capacity of 50 animals. If cats cost \$25 per day to board and dogs cost \$30 per day, how many of each pet were boarded on a day when the motel met its maximum capacity and brought in exactly \$1300.

**Distributed Practice Problems**

Solve each of the following equations.

21.  $15x^2 + 2x - 24 = 0$
22.  $|3x - 4| - 8 = 12$
23.  $(3x + 7)^{\frac{2}{3}} - 10(3x + 7)^{\frac{1}{3}} = -25$
24.  $\sqrt{7x - 17} + 8 = x$
25.  $\log_3 x + \log_3(4x + 4) = 2$

Solve each of the following inequalities. Write your solutions in interval notation.

26.  $-5x + 4 \geq 9$  and  $2x + 3 < x - 11$
27.  $-3|2x - 6| + 4 < 19$
28.  $7x^3 + 14x^2 - 21x - 42 \leq 0$
29.  $\frac{x^2 - 25}{3x^2 - 4x - 4} \geq 0$

Expand the following binomial.

30.  $(2x + 3y)^5$