



1-7 Additional Practice

Solving Linear Systems Using Matrices

Solve each linear system of equations as a matrix.

$$1. \begin{cases} 6x - y = 8 \\ -3x + 3y = 6 \end{cases}$$

$$2. \begin{cases} x - 2y + 3z = 18 \\ 9x + 2y - z = -2 \\ -6x - y + 2z = 4 \end{cases}$$

$$3. \begin{cases} 3x - 4y + 8z = 1 \\ 2y - 3z = -9 \\ -2x + 3y - 5z = 2 \end{cases}$$

Solve the following system of equations.

$$4. \left[\begin{array}{cc|c} 2 & -6 & -7 \\ -1 & 3 & 14 \end{array} \right]$$

$$5. \left[\begin{array}{ccc|c} 5 & 3 & -4 & -11 \\ -1 & 6 & 4 & 5 \\ 0 & 8 & -1 & 0 \end{array} \right]$$

$$6. \left[\begin{array}{ccc|c} 5 & 3 & -4 & -11 \\ -1 & 6 & 4 & 5 \\ 0 & 8 & 6 & 14 \end{array} \right]$$

Solve each system of equations using technology with matrices.

$$7. \begin{cases} 4x + y - 2z = 3 \\ 2y + z = 4 \\ 3x - 3y - z = 9 \end{cases}$$

$$8. \begin{cases} 5x - 2y + z = -1 \\ -x - y - 2z = 5 \\ 3x + 2y + 2z = 2 \end{cases}$$

$$9. \begin{cases} 3x + 5z = -4 \\ -2x + y - 3z = 9 \\ -x - 2y + 9z = 0 \end{cases}$$

10. The movie theater sells popcorn in three different sizes. A small popcorn costs \$2, a medium popcorn costs \$5, and a large popcorn costs \$10. Ruby sold 250 total containers of popcorn for a total of \$1,726. Ruby sold twice as many large containers as small ones.

a. How many of each size popcorn did Ruby sell?

b. How much money was made from selling the small-size popcorn?

11. Write a matrix for a system of equations that does not have a unique solution.