

Name _____

10-8B Lesson Master**Questions on SPUR Objectives**

See pages 650–653 for objectives.

SKILLS Objective D

In 1–6, match each system of equations to its system in matrix form.

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

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

3.
$$\begin{cases} 7x - 0.2y = 3 \\ 3x + 1.5y = 8 \end{cases}$$

4.
$$\begin{cases} 5x + y = 5 \\ 7x + 3y = 0 \end{cases}$$

5.
$$\begin{cases} 5x - y = 5 \\ 3x + 7y = 0 \end{cases}$$

6.
$$\begin{cases} 3x - 0.2y = 8 \\ 7x + 1.5y = 3 \end{cases}$$

A
$$\begin{bmatrix} 5 & 1 \\ 7 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 0 \end{bmatrix}$$

B
$$\begin{bmatrix} 3 & -2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -9 \\ 1 \end{bmatrix}$$

C
$$\begin{bmatrix} 7 & -0.2 \\ 3 & 1.5 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 3 \\ 8 \end{bmatrix}$$

D
$$\begin{bmatrix} 5 & -1 \\ 3 & 7 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 5 \\ 0 \end{bmatrix}$$

E
$$\begin{bmatrix} 3 & 3 \\ -2 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 9 \\ -1 \end{bmatrix}$$

F
$$\begin{bmatrix} 3 & -0.2 \\ 7 & 1.5 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 8 \\ 3 \end{bmatrix}$$

In 7–10, use the system given.

- Write the system in matrix form.
- Use technology to find the inverse matrix.
- Solve the system.

7.
$$\begin{cases} 4x + 2y = -2 \\ 2x - 5y = -31 \end{cases}$$

8.
$$\begin{cases} -2x + 3y = -18 \\ x + 5y = -4 \end{cases}$$

a. _____

a. _____

b. _____

b. _____

c. _____

c. _____

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

10.
$$\begin{cases} 11x + 3y = -4 \\ 7x + 2y = 5 \end{cases}$$

a. _____

a. _____

b. _____

b. _____

c. _____

c. _____

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In 11-14, solve the system using matrices.

11.
$$\begin{cases} 3x - 5y = -26 \\ 4x + 2y = 0 \end{cases}$$

12.
$$\begin{cases} 4x - y = -3 \\ 2x + 3y = -33 \end{cases}$$

13.
$$\begin{cases} 6x - 3y = -4.5 \\ 2x + 8y = 21 \end{cases}$$

14.
$$\begin{cases} -2x + 2y = -2 \\ 7x - 10y = 19 \end{cases}$$

15. In a new credit card rewards program, you can earn different amounts of airplane miles depending on your number of purchases during the weekdays or weekends. Suppose in January you make 52 purchases during the week and 23 purchases during the weekend, and you earn a total of 3,290 miles. Suppose in February you make 81 purchases during the week and 9 purchases during the weekend and you earn 4,320 miles. How many miles is each weekday purchase worth? How many miles is each weekend purchase worth?

a. Write a system of equations to represent the problem.

b. Write the system in matrix form.

c. Solve the system.

d. If you make 45 weekday purchases and 29 weekend purchases in March, how many miles will you earn?

16. In July, an animal shelter spent \$1,025 to feed 25 cats and 15 dogs. In August, they spent \$1,285 to feed 31 cats and 19 dogs. How much did it cost to feed one cat for a month? How much did it cost to feed one dog for a month? Assume that it cost the same amount to feed each dog and that it cost the same amount to feed each cat.

a. Write a system of equations to represent the problem.

b. Write the system in matrix form.

c. Solve the system.

d. If the costs per dog and per cat remain the same, how much will it cost to feed 22 cats and 14 dogs in October?
