

Solve each equation. (Lesson 4-1)

$$1. \begin{bmatrix} 3x + 1 \\ 7y \end{bmatrix} = \begin{bmatrix} 19 \\ 21 \end{bmatrix}$$

$$2. \begin{bmatrix} 2x + y \\ 4x - 3y \end{bmatrix} = \begin{bmatrix} 9 \\ 23 \end{bmatrix}$$

BUSINESS For Exercises 3 and 4, use the table and the following information.

The manager of The Best Bagel Shop keeps records of the types of bagels sold each day at their two stores. Two days of sales are shown below.

Day	Store	Type of Bagel			
		Sesame	Poppy	Wheat	Plain
Monday	East	120	80	64	75
	West	65	105	77	53
Tuesday	East	112	79	56	74
	West	69	95	82	50

- Write a matrix for each day's sales. (Lesson 4-1)
- Find the sum of the two days' sales using matrix addition. (Lesson 4-2)

Perform the indicated matrix operations.

(Lesson 4-2)

$$5. \begin{bmatrix} 3 & 0 \\ 7 & 12 \end{bmatrix} - \begin{bmatrix} 6 & -5 \\ 4 & -1 \end{bmatrix}$$

$$6. 5 \begin{bmatrix} -2 & 4 & 5 \\ 0 & -4 & 7 \end{bmatrix}$$

- MULTIPLE CHOICE** Solve for x and y in the matrix equation

$$\begin{bmatrix} 4x \\ -y \end{bmatrix} + \begin{bmatrix} -3y \\ 4 \end{bmatrix} = \begin{bmatrix} 22 \\ 2 \end{bmatrix}. \quad (\text{Lesson 4-2})$$

- A $x = 7, y = 2$ C $x = -7, y = 2$
 B $x = -7, y = -2$ D $x = 7, y = -2$

Find each product, if possible. (Lesson 4-3)

$$8. \begin{bmatrix} 4 & 0 & -8 \\ 7 & -2 & 10 \end{bmatrix} \cdot \begin{bmatrix} -1 & 3 \\ 6 & 0 \end{bmatrix}$$

$$9. \begin{bmatrix} 3 & -1 \\ 2 & 5 \end{bmatrix} \cdot \begin{bmatrix} 4 & -1 & -2 \\ -3 & 5 & 4 \end{bmatrix}$$

RESTAURANTS For Exercises 10–13, use the table and the following information. (Lesson 4-3)

At Joe's Diner, the employees get paid weekly. The diner is closed on Mondays and Tuesdays. The servers make \$20 per day (plus tips), cooks make \$64 per day, and managers make \$96 per day.

Number of Staff			
Day	Servers	Cooks	Managers
Wed.	8	3	2
Thur.	11	4	2
Fri.	17	6	5
Sat.	18	6	5
Sun.	14	5	3

- Write a matrix for the number of staff needed for each day at the diner.
- Write a cost matrix for the cost per type of employee.
- Find the total cost of the wages for each day expressed as a matrix.
- What is the total cost of wages for the week?

- MULTIPLE CHOICE** What is the product of

$$\begin{bmatrix} 5 & -2 & 3 \end{bmatrix} \text{ and } \begin{bmatrix} 1 & -2 \\ 0 & 3 \\ 2 & 5 \end{bmatrix} ? \quad (\text{Lesson 4-3})$$

F $\begin{bmatrix} 11 \\ -1 \end{bmatrix}$

G $[11 \ -1]$

H $\begin{bmatrix} 5 & -10 \\ 0 & -6 \\ 6 & -15 \end{bmatrix}$

J undefined

For Exercises 15 and 16, reflect square $ABCD$ with vertices $A(1, 2)$, $B(4, -1)$, $C(1, -4)$, and $D(-2, -1)$ over the y -axis. (Lesson 4-4)

- Write the coordinates in a vertex matrix.
- Find the coordinates of $A'B'C'D'$. Then graph $ABCD$ and $A'B'C'D'$.