

Practice A

For use with pages 199–206

Determine the dimensions of the matrix.

1.
$$\begin{bmatrix} 3 & 5 & -7 \\ 1 & 2 & 9 \\ -2 & 6 & 1 \\ 4 & -3 & 5 \end{bmatrix}$$

2.
$$\begin{bmatrix} 4 & 9 \\ -5 & 1 \\ 2 & -6 \end{bmatrix}$$

3.
$$\begin{bmatrix} 4 \\ 3 \end{bmatrix}$$

4.
$$\begin{bmatrix} 1 & 4 & 5 & -2 \\ -6 & 2 & 0 & 3 \\ 3 & 8 & -1 & 4 \end{bmatrix}$$

Tell whether the matrices are equal or not equal.

5.
$$\begin{bmatrix} 3 & 4 \\ -7 & 1 \end{bmatrix}, \begin{bmatrix} 3 & 4 \\ 7 & -1 \end{bmatrix}$$

6.
$$\begin{bmatrix} 2 & -1 & 6 \\ -1 & & 6 \end{bmatrix}$$

7.
$$\begin{bmatrix} 1 & 0 \\ 4 & -3 \end{bmatrix}, \begin{bmatrix} \frac{2}{2} & 0 \\ \frac{8}{2} & -\frac{3}{1} \end{bmatrix}$$

Perform the indicated operation, if possible. If not possible, state the reason.

8.
$$\begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix} + \begin{bmatrix} 2 & 0 \\ 4 & 1 \end{bmatrix}$$

9.
$$\begin{bmatrix} 2 \\ 5 \end{bmatrix} + \begin{bmatrix} -3 \\ 1 \end{bmatrix}$$

10.
$$\begin{bmatrix} 4 & 0 \end{bmatrix} + \begin{bmatrix} 2 & -4 \end{bmatrix}$$

11.
$$\begin{bmatrix} 2 \\ -7 \end{bmatrix} + \begin{bmatrix} -3 & 4 \end{bmatrix}$$

12.
$$\begin{bmatrix} 0 & 4 \\ -3 & 1 \end{bmatrix} - \begin{bmatrix} 2 & 1 \\ -4 & -2 \end{bmatrix}$$

13.
$$\begin{bmatrix} 3 \\ -4 \end{bmatrix} - \begin{bmatrix} 4 \\ 7 \end{bmatrix}$$

14.
$$\begin{bmatrix} 1 & 4 \\ -5 & 8 \end{bmatrix} - \begin{bmatrix} 1 & 4 \\ -5 & 8 \end{bmatrix}$$

15.
$$\begin{bmatrix} 1 & 1 \\ 2 & -1 \end{bmatrix} - \begin{bmatrix} 3 & 5 \end{bmatrix}$$

16.
$$\begin{bmatrix} 0 & 0 \\ 0 & 4 \end{bmatrix} + \begin{bmatrix} -13 & 2 \\ 1 & -7 \end{bmatrix}$$

Perform the indicated operation.

17.
$$2 \begin{bmatrix} 1 & 6 \\ -3 & 2 \end{bmatrix}$$

18.
$$-3 \begin{bmatrix} 1 & 0 \\ -3 & 6 \end{bmatrix}$$

19.
$$5 \begin{bmatrix} 2 \\ -5 \end{bmatrix}$$

20.
$$-4 \begin{bmatrix} -3 & 6 & 1 \end{bmatrix}$$

21.
$$8 \begin{bmatrix} 3 \\ 0 \\ -5 \end{bmatrix}$$

22.
$$-1 \begin{bmatrix} 2 & 5 & -3 \\ 6 & -1 & -7 \\ 0 & 0 & 9 \end{bmatrix}$$

Solve the matrix for x and y.

23.
$$\begin{bmatrix} x & 3 \\ 5 & y \end{bmatrix} = \begin{bmatrix} 2 & 3 \\ 5 & -4 \end{bmatrix}$$

24.
$$\begin{bmatrix} 2x \\ 3 \\ 4 \end{bmatrix} = \begin{bmatrix} 10 \\ 3 \\ 4y \end{bmatrix}$$

25.
$$\begin{bmatrix} 3x & -21 \end{bmatrix} = \begin{bmatrix} 21 & 7y \end{bmatrix}$$

26. **Endangered and Threatened Species** The matrices below show the number of endangered and threatened animal and plant species as of June 30, 1996. Use matrix addition to find the total number of endangered and threatened species. (Source: 1997 Information Please Almanac)

	ENDANGERED		THREATENED	
	U.S.	Foreign	U.S.	Foreign
Animal	$\begin{bmatrix} 320 \\ 521 \end{bmatrix}$		$\begin{bmatrix} 115 \\ 41 \end{bmatrix}$	
Plant	$\begin{bmatrix} 431 \\ 1 \end{bmatrix}$		$\begin{bmatrix} 94 \\ 2 \end{bmatrix}$	