



Math on the Fly!



NAME: _____ DATE: _____

Multiplying Matrices

Below are several matrices. Each X represents a number in the matrix.

Determine if the matrix multiplication is possible in problems 1–10.

If it's possible, give the dimensions of the answer.

$$A = \begin{bmatrix} X & X & X \\ X & X & X \end{bmatrix}$$

$$C = \begin{bmatrix} X & X & X & X \end{bmatrix}$$

$$E = \begin{bmatrix} X \\ X \\ X \end{bmatrix}$$

$$F = \begin{bmatrix} X & X \\ X & X \\ X & X \end{bmatrix}$$

$$B = \begin{bmatrix} X & X & X & X \\ X & X & X & X \end{bmatrix}$$

$$D = \begin{bmatrix} X \\ X \end{bmatrix}$$

1. AB 2. AF 3. EC 4. FA 5. BA

6. FD 7. CD 8. AE 9. DC 10. BE

Multiply the matrices and find each product.

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

12. $\begin{bmatrix} 0 & -4 & -3 \\ -6 & 8 & 7 \end{bmatrix} \begin{bmatrix} -3 & 4 \\ 2 & -1 \\ -5 & -7 \end{bmatrix}$

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

14. $\begin{bmatrix} -1 \\ 4 \\ -2 \end{bmatrix} \begin{bmatrix} -7 & 3 \end{bmatrix}$

SOLUTIONS

1. AB is not possible

2. AF is possible
(Answer: 2 x 2)

3. EC is possible
(Answer: 3 x 4)

4. FA is possible
(Answer: 3 x 3)

5. BA is not possible

6. FD is possible
(Answer: 3 x 1)

7. CD is not possible

8. AE is possible
(Answer: 2 x 1)

9. DC is possible
(Answer: 2 x 4)

10. BE is not possible

11.
$$\begin{bmatrix} -27 & 35 \\ 65 & -83 \end{bmatrix}$$

12.
$$\begin{bmatrix} 7 & 25 \\ -1 & -81 \end{bmatrix}$$

13.
$$\begin{bmatrix} 42 & -19 & -16 \\ 18 & -12 & 4 \end{bmatrix}$$

14.
$$\begin{bmatrix} 7 & -3 \\ -28 & 12 \\ 14 & -6 \end{bmatrix}$$