

5.3 Add, Sub, & Scalar Mult Matrices Homework

Name: Key
Date: _____ Block: _____

1. $B = \begin{bmatrix} 2 & -3 & 1 \\ -2 & 0 & 5 \end{bmatrix}$

a. What is the dimension of B?

2×3

b. What is the value of the element b_{13} ?

1

c. What is the value of element b_{21} ?

-2

2. $C = \begin{bmatrix} 2 & -3 & 1 \\ -2 & 0 & 5 \\ -1 & 3 & 4 \end{bmatrix}$ $D = \begin{bmatrix} 2 & -3 \\ -2 & 0 \\ 7 & 1 \end{bmatrix}$

a. What is the dimension of C?

3×3

b. What is the dimension of D?

3×2

c. What is the value of the element c_{21} ?

-2

d. What is the value of the element c_{32} ?

3

e. What is the value of the element d_{32} ?

1

f. What is the value of the element d_{12} ?

-3

Add or Subtract the following matrices (if possible).

3. $\begin{bmatrix} 5 & 9 & 3 \\ 9 & 3 & 0 \\ 5 & 5 & 6 \end{bmatrix} + \begin{bmatrix} 8 & 1 & 9 \\ 6 & 0 & 7 \\ 6 & 2 & 2 \end{bmatrix} =$

$\begin{bmatrix} 13 & 10 & 12 \\ 15 & 3 & 7 \\ 11 & 7 & 8 \end{bmatrix}$

4. $\begin{pmatrix} -9 & 13 & 4 & 2 & 5 \\ 0 & 22 & -8 & -5 & 12 \\ 43 & 9 & 1 & 8 & 6 \end{pmatrix} - \begin{pmatrix} 0 & 9 & -4 & 7 & 4 \\ -8 & 6 & 3 & -2 & 1 \\ 9 & -4 & 0 & 1 & 6 \end{pmatrix}$

$\begin{bmatrix} -9 & 4 & 8 & -5 & 1 \\ 8 & 16 & -11 & -3 & 11 \\ 34 & 13 & 1 & 7 & 0 \end{bmatrix}$

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

no possible

6. $\begin{bmatrix} -3 & 8 & 0 \\ 5 & 2 & -4 \end{bmatrix} + \begin{bmatrix} 2 & 11 & -7 \\ -8 & 9 & -3 \end{bmatrix} =$

$\begin{bmatrix} -1 & 19 & -7 \\ -3 & 11 & -7 \end{bmatrix}$

7. $\begin{bmatrix} 7 & -15 \\ 3 & 2 \\ 8 & 19 \end{bmatrix} - \begin{bmatrix} 9 & -23 \\ -5 & 12 \\ 0 & 22 \end{bmatrix} = \begin{bmatrix} -2 & 8 \\ 8 & -10 \\ 8 & -3 \end{bmatrix}$

Find the value for each variable

$$8. \begin{bmatrix} 8 & -4 \\ 12 & 5 \\ r & -3 \end{bmatrix} + \begin{bmatrix} 0 & -6 \\ m & 7 \\ -2 & 8 \end{bmatrix} = \begin{bmatrix} p & q \\ -8 & n \\ 10 & s \end{bmatrix}$$

$$m = -20 \quad n = 12 \quad p = 8 \quad q = -10 \quad r = 12 \quad s = 5$$

Use Scalar Multiplication for each of the following matrices.

$$A = \begin{bmatrix} 1 & -1 \\ 6 & 7 \end{bmatrix} \quad B = \begin{bmatrix} -1 & 0 \\ 7 & -4 \end{bmatrix} \quad D = \begin{bmatrix} 1 & -1 & 0 \\ 6 & 7 & -4 \end{bmatrix} \quad E = \begin{bmatrix} 2 \\ -5 \\ 3 \end{bmatrix}$$

9. $2A$

$$\begin{bmatrix} 2 & -2 \\ 12 & 14 \end{bmatrix}$$

10. $2B$

$$\begin{bmatrix} -2 & 0 \\ 14 & -8 \end{bmatrix}$$

11. $3D$

$$\begin{bmatrix} 3 & -3 & 0 \\ 18 & 21 & -12 \end{bmatrix}$$

12. $-1E$

$$\begin{bmatrix} -2 \\ 5 \\ -3 \end{bmatrix}$$