Introduction to Contemporary Mathematics

Assignment 23

1. Use the matrix $\begin{bmatrix} 1 & 3 & 2 & 2 \\ 0 & 3 & 5 & 5 \\ 1 & 5 & 4 & 7 \\ 0 & 0 & 0 & 4 \end{bmatrix}$ to answer each of the following questions.

   (a) What is the size of this matrix?

   (b) What number is in the 2,3 position?

   (c) What number is in the 3,1 position?

2. Use the matrix $\begin{bmatrix} 4 & 9 \\ 0 & 6 \\ 7 & 5 \\ 0 & 4 \\ 2 & 8 \end{bmatrix}$ to answer each of the following questions.

   (a) What is the size of this matrix?

   (b) What number is in the 5,2 position?

   (c) What number is in the 3,1 position?

3. Perform each of the following operations if possible. If not possible, say so.

   (a) $5\begin{bmatrix} 4 & 9 \\ 0 & 6 \\ 7 & 5 \\ 0 & 4 \end{bmatrix} =$

   (b) $-3\begin{bmatrix} 1 & 9 \\ -1 & -7 \end{bmatrix} =$

   (c) $\begin{bmatrix} 1 & 4 \\ -1 & -6 \end{bmatrix} + \begin{bmatrix} -3 & 9 \\ 8 & -4 \end{bmatrix} =$

   (d) $\begin{bmatrix} -1 & 4 & 11 \\ 2 & 6 & 15 \end{bmatrix} + \begin{bmatrix} 8 & -9 \\ 2 & -4 \end{bmatrix} =$

   (e) $\begin{bmatrix} 6 & 4 & 5 \\ 9 & 2 & -2 \end{bmatrix} + \begin{bmatrix} 2 & 0 & -1 \\ 2 & -4 & 5 \end{bmatrix} =$

4. Use $\star$–multiplication on each of the following number lists.

   (a) $(2, 4, 4, 8) \star (3, 2, 1, 7)$

   (b) $(-2, 4, -4) \star (1, 1, 1)$

   (c) $(2, 0, 0, 1, 4) \star (-3, 2, -2, 1, 0)$