Addition and Substraction of Matrices

A. The Purpose of Learning Addition and Substraction of Matrices

> You have studied addition and substraction of matrices by Casio ClassWiz Emulator Fx-570/991EX, you should be able to :
> 1. Understand definition and condition of addition and substraction of matrices.
> 2. Understand addition and substraction of two or more matrices
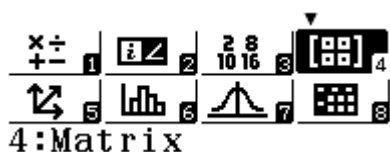
B. Addition and Substraction of Matrices

Problem 1

If $A = \begin{bmatrix} 1 & 2 & 3 \\ 6 & 5 & 4 \end{bmatrix}, B = \begin{bmatrix} 2 & 1 & 6 \\ 0 & 3 & 5 \end{bmatrix}, C = \begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix}, D = \begin{bmatrix} 3 & 5 & -11 \\ 10 & 2 & 6 \\ -2 & -1 & 7 \end{bmatrix}$ and $E = \begin{bmatrix} 17 & -4 & 3 \\ -2 & 8 & -8 \\ 3 & -4 & 11 \end{bmatrix}$. Determine the result of the following operations, give the reason if there is no result ?

   a. $A + B$
   b. $A + C$
   c. $D + E$
   d. $D + A$
   e. $B - C$
   f. $D - E$

Solution :

a. Click MENU , click number 4 matrix

4:Matrix

Define Matrix
1:MatA   2:MatB
3:MatC   4:MatD

Click number 1

MatA
Number of Rows?

Select 1~4

```
MatA
Number of
        Columns?
Select 1~4
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Input number of Rows and number of columns

```
MatA=
[  0   0   0]
   0   0   0
```

$$0$$

Input the elements of matrix A

```
MatA=
[  1   2   3]
   6   5   4
```

$$4$$

Click OPTN and click number 2 for matrix B, repeat the same steps as matrix A

```
MatB=
[  2   1   6]
   0   3   5
```

$$5$$

Click AC to save matrix A

Click OPTN and click number 3 : Matrix Calc

```
1:Define Matrix
2:Edit Matrix
3:Matrix Calc
```

Click OPTN

Click 3 : Mat A

Click +

Click OPTN

Click 4: Mat B

Click =

```
MatA+MatB
```

```
MatAns=
[  3   3   9]
   6   8   9
```

$$3$$

Repeat the same steps for quetion b, c, d, e and f.

Make a conclusion about addition and substraction of matrices with your partner

Summary

Write down a summary using your own words about addition and substraction of matrices !

If A and B are matrices of the same ......, then ....

Problem 2

Repeat the same steps as Problem 1 by Casio ClassWiz Emulator Fx-570/991EX

1. If $A = \begin{bmatrix} -1 & 0 \\ 1 & 5 \end{bmatrix}, B = \begin{bmatrix} 3 & 4 \\ -1 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} 4 & -1 \\ -1 & 3 \end{bmatrix}$. Compute the following :

a. $A + B$

b. $B + A$

c. Does $A + B = B + A$?

d. Consider the answers to parts a.) and b.) . What conclusions can be drawn ?

2. For $A = \begin{bmatrix} -1 & 0 \\ 1 & 5 \end{bmatrix}, B = \begin{bmatrix} 3 & 4 \\ -1 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} 4 & -1 \\ -1 & 3 \end{bmatrix}$. Compute the following :

a. $(A + B) + C$

b. $A + (B + C)$

c. Consider the answers to parts a.) and b.) . What conclusions can be drawn ?