- To delete the fourth row of a:

a(4,:) = [ ] >> a= 1 2 3 4 5
2 3 4 5 6
3 4 5 6 7

EX: Create a 3-by-3 matrix m, then copy the second and third rows of this matrix twice to create a 4-by-3 matrix.

m =[1 2 3;4 5 6;7 8 9]; >> m= 1 2 3
4 5 6
7 8 9

new_m = m([2,3,2,3], :) >> new_m =

4	5	6
7	8	9
4	5	6
7	8	9

- The **address** of an element in a matrix is its **position**, defined by the row number and the column number where it is located, For example:

m(1,1) = 1 , m(i,j) ➔ i=1 , j=1 , i= row number
m(2,1) = 4 , m(i,j) ➔ i=2 , j=1 , j= column number
m(3,3) = 9 , m(i,j) ➔ i=3 , j=3

- Rows and/or columns can be added to an existing matrix by assigning values to the new rows or columns.

EX: Add the vector 10 14 18 22 as the third row of E= $\begin{pmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \end{pmatrix}$

```
E=[1 2 3 4; 5 6 7 8]        >> E =   1 2 3 4
                                     5 6 7 8
```

E(3,:)=[10, 14, 18, 22]

```
>> E =      1    2    3    4
           5    6    7    8
          10   14   18   22
```

- To add or subtract matrices. Both the operand matrices must have the same number of rows and columns.

```
a = [ 1 2 3 ; 4 5 6; 7 8 9];
b = [ 7 5 6 ; 2 0 8; 5 7 1];
 c = a + b
 d = a – b
```

```
>> c = 8  7   9
       6   5   14
       12 15  10
```

```
>>   d = -6  -3  -3
          2   5  -2
          2   1   8
```

- When you add, subtract, multiply or divide a matrix by a number, this is called the **scalar operation.**
- **Scalar operations** produce a new matrix with same number of rows and columns with each element of the original matrix added to, subtracted from, multiplied by or divided by the number

EX:

```
a = [ 10 12 23 ; 14 8 6; 27 8 9];
b = 2;
c = a + b
d = a - b
e = a * b
f = a / b
```

- >> c =
```
    12   14   25
    16   10    8
    29   10   11
```
- >> d =
```
     8   10   21
    12    6    4
    25    6    7
```
- >> e =
```
    20   24   46
    28   16   12
    54   16   18
```
- >> f =
```
    5.0000    6.0000   11.5000
    7.0000    4.0000    3.0000
   13.5000    4.0000    4.5000
```