Matrix Computation using MATLAB

- A matrix is entered **row-wise**, with consecutive **elements** of a **row** separated by a **space** or a **comma**, and the **rows separated** by **semicolons**. The entire matrix must be enclosed within square brackets.

Matrix:

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 7 & 8 & 9 \end{bmatrix}$$

MATLAB input command

A=[1 2 3;7 8 9]

OR

A=[1,2,3;7,8,9]

MATLAB Command:

```
A=[1 2 3;7 8 9;10 11 12];
B=A'
```


Answer

```
B =
     1     7    10
     2     8    11
     3     9    12
```

MATLAB Command

```
C=[12 3 4-8*i;5*i 10 15];
Ct=C'
```

Answer

```
Ct =

  12.0000                  0 - 5.0000i
   3.0000                 10.0000
   4.0000 + 8.0000i       15.0000
```

Exponentiation

$$A = \begin{bmatrix} 1 & 0 & 2 \\ 2 & 4 & 5 \\ 1 & 2 & 2 \end{bmatrix} \qquad Find\ A^3$$

MATLAB Command:

```
A=[1 0 2;2 4 5;1 2 2];
B=A^3
```

Output:

```
B =
    17    28    38
   101   172   228
    47    80   106
```

To find the determinant

$$A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 2 & 4 \\ 3 & 3 & 0 \end{bmatrix}$$

Find the determinant of A

MATLAB Command

```
A=[1 0 1;0 2 4;3 3 0];
  det(A)
```

```
ans =
   -18
```