A matrix A is called symmetric if = A

Example A =   , B =

A is symmetric since =A

B is not symmetric since B

Properties of symmetric matrix

1) If A is symmetric then is symmetric

2) If A and B are symmetric then A+B is symmetric

3) If A and B are symmetric then AB is symmetric iff AB = BA

A matrix A is called anti symmetric if = -A

Example A = is anti symmetric since = -A

Properties of anti symmetric matrix

1) If A is anti symmetric then is anti symmetric

2) If A and B are anti symmetric then A+B is anti symmetric

3) If A and B are anti symmetric then AB is anti symmetric iff AB = - BA

The inverse of matrix

An n×n matrix is called nonsingular (invertible) if there is n×n matrix B such that AB

= BA =

The matrix B is called an inverse of A(denoted by)

If there exists no matrix B then A is called singular (n0n invertible)

Example Let A = , B = , AB = BA =

B is an inverse of A(Ais non singular)

If a matrix has an inverse then the inverse is unique

Properties of inverse

1) If A is non singular then is non singular and = A

2) If A and B are non singular then AB non singular and =

3) If A is non singular then =

Example Find the inverse of A =

=

=

= 1 , = 0

= 0 , = 1

A = -2 , b = 1 , c = 3/2 , d = -1/2

=

Gauss Jordan method

Example A =

[A:] =

Divided first row on 3

Multiply fist row by -2 and add to second row. Multiply fist row by -4 and add to third row