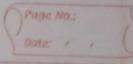
Formula sheet



Matrices

Inverse of matrices:

- · If IAI + 0, then A-1 exits.
- · If inverse exists , then it is unique.
- · Inverse of 2x2, A=[ab]

* Inverse of 3x3

Flementry Transformation:

- i) Row Transformation consider AA-1 = I
 - convert A into[1 0]

ii) Coloumn Transformation consider A-1 A = I convert A into[10]

· Adjoint of matrix:

cofactor matrix:

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix}$$

a12 a22 a32

Application of matrix.

$$x+2y=5$$
 $2x-y=3$

$$\begin{bmatrix} 1 & 2 \end{bmatrix} \begin{bmatrix} x \\ 2 & -1 \end{bmatrix} \begin{bmatrix} y \\ 3 \end{bmatrix}$$

$$A^{-1}(Ax) = A^{-1}B$$

 $TX = A^{-1}B$

ii) Method of Reduction. Reduce to (convert)

i) diagonal

A= [a 0 0] au = [au 0 0]

[0 b 0] 0 bu 0

[0 0 c] 0 0 cu

 $A^{-1} = \int \frac{1}{a} = 0 \quad 0$ $0 \quad \frac{1}{b} = 0$

· Important result and short tricks:

7.
$$(kA)^{-1} = 1/k A^{-1}$$