Linear Algebra

Matrices: Reclangulon array
of numbers in
sows & columns

redoes: both site & direction

 $\begin{array}{ccc}
\overrightarrow{\nabla} & \nabla = & \nabla V \\
\nabla V & & \nabla V \\
& & \nabla V & & \nabla V \\
& & & \nabla V & & \nabla V \\
& & & & & & & & \\
\end{array}$ 

Uses: To solver linear equations linear Transformations Eigen values & Eigen Vectors PC/A

Neural networks

luiea hegression.

unéan Equations: Represents straight line when plotted

9 st power of variable is 1

Ax + By = C 2x + 3y = B y = 25x - 1 x = y

quassian elimination: Used to solve system quincin

Example: x - 2y + z = 0 Ax = b 2x + 2y - 3z = 54x - 2y + z = -1

Augmented Matrix  $\rightarrow \begin{bmatrix} 1 & -2 & 1 & 0 \\ 2 & 2 & -3 & 5 \\ 4 & -7 & 1 & -1 \end{bmatrix}$ 

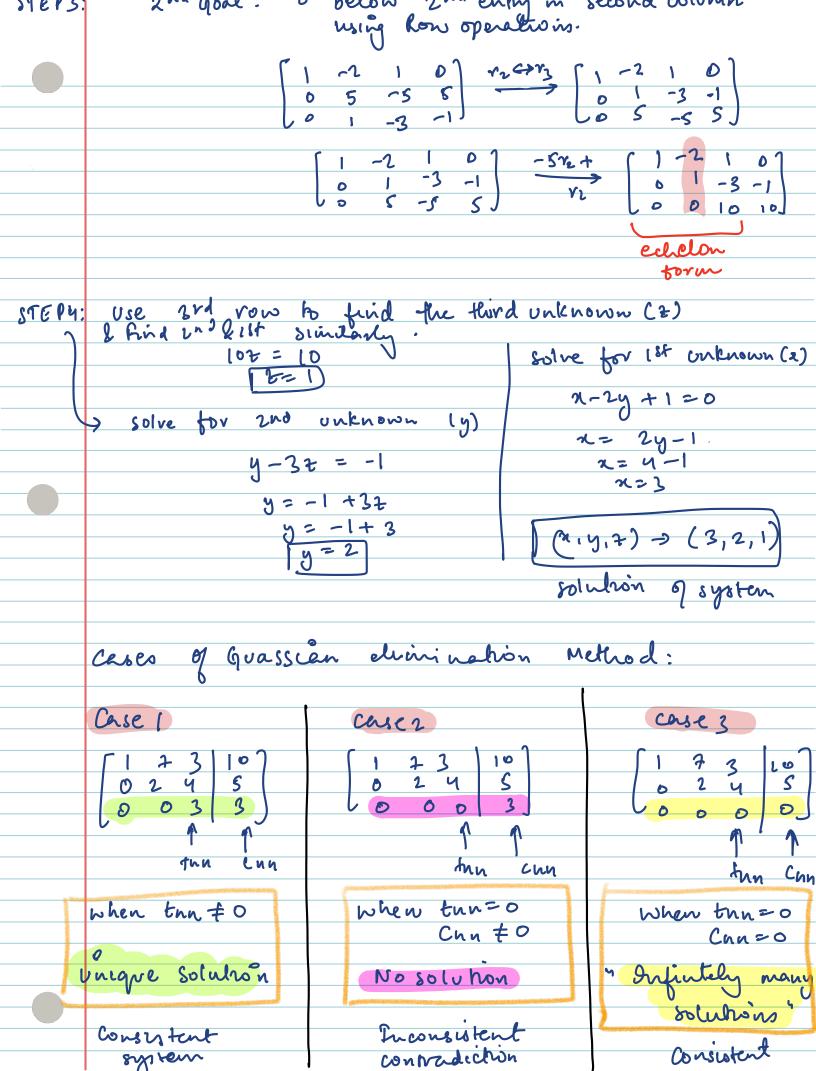
and a little and a his again a share

STEP 2: 1<sup>c+</sup> Goal -> 0 below (st entry in 1<sup>c+</sup> column using Row operations

 $\begin{bmatrix}
-1 & -2 & 1 & 0 \\
2 & 1 & -3 & 5 \\
4 & -1 & 1 & -1
\end{bmatrix}
\xrightarrow{-2\eta+r_2}
\begin{bmatrix}
1 & -2 & 1 & 0 \\
0 & 5 & -5 & 5 \\
0 & 1 & -3 & 1
\end{bmatrix}$ 

0.55.0.2

STEP1:



REF and RREF RREF REF 15 at reading places (pivots) 0's below pivots and pivot estumn each has only I nonzero value all non sevo rows abone all levo rows 0 0 0 3 0 example: "Botly supplified" affer REF vi Cenéau · easier to enterpret · Grassione elimination avsstribution can be donc to got values. · " Used to trind Inverse het not for of mahix Inverse matrix suie it is not fully reduced. Inverse of Manices: Use elementary operation to Transform matrix nilo Reduced REF 9 ARREF = fullrank Conditions for Inverse: invene axists 1 last row of AREFF Pullrank Savave are all zero then det | Marix) =0 marik At is not fillrank /linearly independent as -1 doesn't ocem. If A is pull rank then A-1= E, E, -.. E1

Call elementar op

