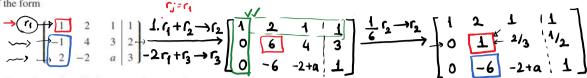
2nd Week Wednesday

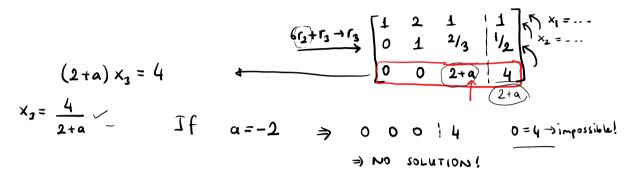
03 Mart 2021 Carsamba 12:36

$$\begin{array}{c}
\text{Adder} & \text{(1)} & \text{(1)} & \text{(2)} & \text{(1)} & \text{(2)} & \text{$$

8. Consider a linear system whose augmented matrix



For what values of a will the system have a unique solution?



If $a \neq -2 \Rightarrow unique$ solution.

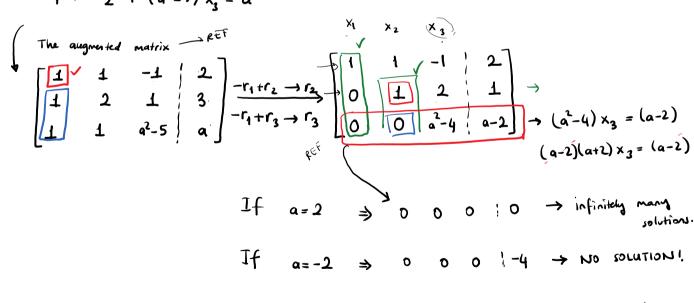


$$x_{1} + x_{2} - x_{3} = 2$$

$$x_{1} + 2x_{2} + x_{3} = 3$$

$$x_{1} + x_{2} + (a^{2} - 5) x_{3} = a$$

the system has what type of solve?

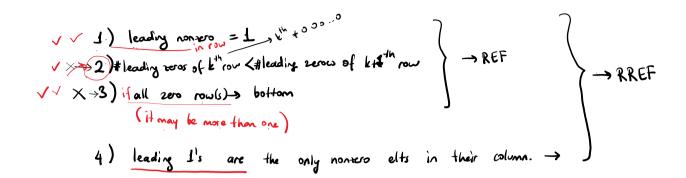


If $a \neq \mp 2 \Rightarrow x_3 = \frac{1}{a+2} \in \mathbb{R} / x_2 / x_1 / \rightarrow unique$

Reduced Row Echelon Form

A matrix is said to be in reduced row echelon form if

- (i) The matrix is in row echelon form.
- (ii) The first nonzero entry in each row is the only nonzero entry in its column.



3. The augmented matrices that follow are in reduced row echelon form. In each case, find the solution set to the corresponding linear system.

(a)
$$\begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$
 (1)

(b)
$$\begin{bmatrix} 1 & 4 & 0 & 2 \\ 0 & 0 & 1 & 3 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

$$\begin{array}{c|cccc}
0 & 1 & -3 & 0 & 2 \\
0 & 0 & 1 & -2 \\
0 & 0 & 0 & 0
\end{array}$$

$$(d)$$
 $\begin{bmatrix} 1 & 2 & 0 & 1 & 5 \\ 0 & 0 & 1 & 3 & 4 \end{bmatrix}$

$$\frac{-1 \cdot r_3 + r_1 \rightarrow r_1}{-1 \cdot r_3 + r_2 \rightarrow r_2}$$

$$x_1 = 2$$
, $x_2 = -1$, $x_3 = 3$, $x_4 = 2$

- 1) Write the augmented matrix
- 2) Make it RREF
- 3) Find the solution(s).