

→ LA (Quiz):

②. → The augmented matrix ⇒ $AX=B$

$$[A|B] = \begin{bmatrix} 1 & 2 & 2 & 3 & | & -1 \\ 3 & 1 & 6 & -1 & | & 7 \\ 2 & -3 & 4 & -8 & | & 12 \end{bmatrix}$$

→ first of all, we can directly say that there can be max^m 3 pivot but 4 unknowns, so, no. of

$$\begin{aligned} R_2 &\rightarrow R_2 - 3R_1 \\ R_3 &\rightarrow R_3 - 2R_1 \end{aligned}$$

col. 2 ⇒ infinite

$$\begin{bmatrix} 1 & 2 & 2 & 3 & | & -1 \\ 0 & -5 & 0 & -10 & | & 10 \\ 0 & -7 & 0 & -14 & | & 14 \end{bmatrix}$$

So, Consistent

$$\begin{aligned} R_2 &\rightarrow R_2 \times -1/5 \\ R_3 &\rightarrow R_3 \times -1/7 \end{aligned}$$

$$\begin{bmatrix} 1 & 2 & 2 & 3 & | & -1 \\ 0 & 1 & 0 & 2 & | & -2 \\ 0 & 1 & 0 & 2 & | & -2 \end{bmatrix}$$

$$R_3 \rightarrow R_3 - R_2$$

$$\begin{bmatrix} 1 & 2 & 2 & 3 & | & -1 \\ 0 & 1 & 0 & 2 & | & -2 \\ 0 & 0 & 0 & 0 & | & 0 \end{bmatrix}$$

∴ i.e. x_3 and x_4 are free variables.

MAY 2020						
Mo	Tu	We	Th	Fr	Sa	Su
				1	2	
4	5	6	7	8	9	
11	12	13	14	15	16	
18	19	20	21	22	23	
25	26	27	28	29	30	

30

151-215 | Week 22

Saturday

$$\text{let } \begin{cases} x_3 = P \\ x_4 = Q \end{cases}$$

So \rightarrow from Row (2) \rightarrow

$$x_2 + 2Q = -2$$

$$\boxed{x_2 = -2 - 2Q}$$

from Row (1) \rightarrow

$$x_1 + 2x_2 + 2P + 3Q = -1$$

$$x_1 = -1 - 2P - 3Q - 2(-2 - 2Q)$$

$$x_1 = -1 - 2P - 3Q + 4 + 4Q$$

$$\boxed{x_1 = +3 - 2P + Q}$$

So, general sol.ⁿ \rightarrow

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} +3 - 2P + Q \\ -2 - 2Q \\ P \\ Q \end{bmatrix}$$

31 Sunday

$$\Rightarrow \begin{bmatrix} 3 \\ -2 \\ 0 \\ 0 \end{bmatrix} + P \begin{bmatrix} -2 \\ 0 \\ 1 \\ 0 \end{bmatrix} + Q \begin{bmatrix} 1 \\ -2 \\ 0 \\ 1 \end{bmatrix}$$