

Math 451

→ Gauss and Gauss-Jordan

system of linear eq's ..

$$\left[\begin{array}{ccc|c} \boxed{} & \boxed{} & \dots & \boxed{} \\ 0 & \boxed{} & \dots & \\ 0 & 0 & \dots & \\ 0 & 0 & 0 & \boxed{} \end{array} \right]$$

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & \dots \\ 0 & 1 & 0 & \dots \\ \vdots & \vdots & \vdots & \vdots \\ 0 & 0 & \dots & 1 \end{array} \right]$$

solutions

$$\begin{cases} 3x + 2y + 4z = 6 \\ 2x - y + z = 2 \\ x - y + 3z = 3 \end{cases}$$

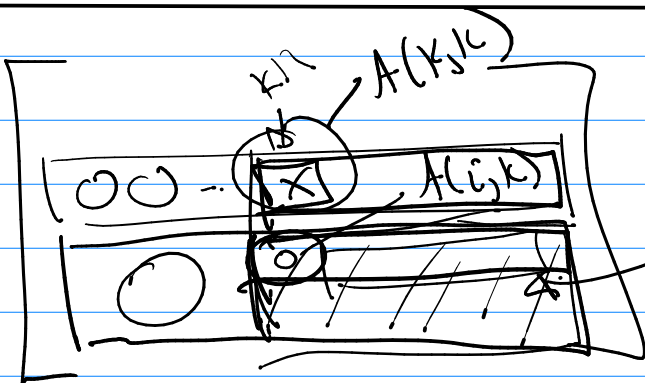
$$\rightarrow \begin{bmatrix} 3 & 2 & 4 \\ 2 & -1 & 1 \\ 1 & -1 & 3 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ 2 \\ 3 \end{bmatrix}$$

$$\rightarrow \left[\begin{array}{ccc|c} 3 & 2 & 4 & 6 \\ 2 & -1 & 1 & 2 \\ 1 & -1 & 3 & 3 \end{array} \right]$$

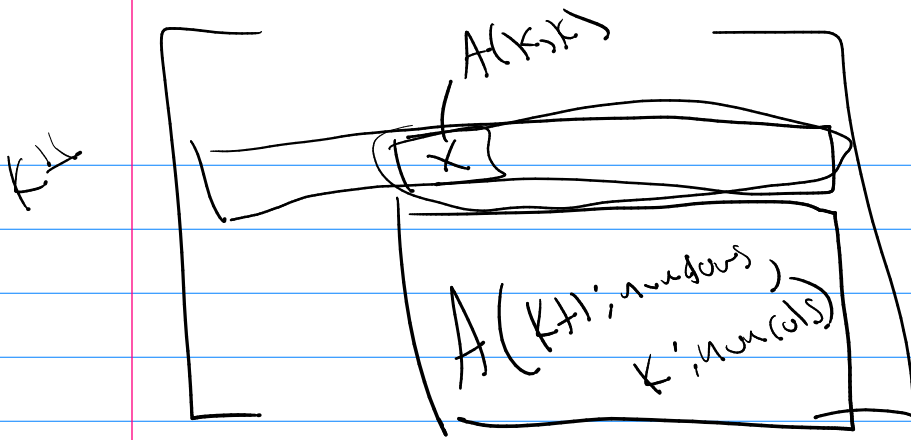
$$\begin{aligned} r_2 - \frac{2}{3}r_1 = Nr_2 \\ r_3 - \frac{1}{3}r_1 = Nr_3 \end{aligned} \quad \left[\begin{array}{ccc|c} 3 & 2 & 4 & 6 \\ 0 & \frac{2}{3} & \frac{2}{3} & \frac{2}{3} \\ 0 & \frac{1}{3} & \frac{5}{3} & \frac{1}{3} \end{array} \right]$$

$$r_3 - 5 \cdot r_2 = Nr_3 \quad \left[\begin{array}{ccc|c} 3 & 2 & 4 & 6 \\ 0 & \frac{2}{3} & \frac{2}{3} & \frac{2}{3} \\ 0 & 0 & \frac{1}{3} & \frac{1}{3} \end{array} \right]$$

k th row



A ($k+1$: num rows) (k : num cols)



Watch Video!

Cell Arrays.

$$A = [1 \ 2; 3 \ 4] \quad \text{@max}$$

$$A = \{ \text{'Mark'}, [1 \ 2; 3 \ 4] \}$$