GAUSS ELIMINATION

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Pivot

LINEAR

To find x, y & z

PROBLEM

- X+Y+Z=3
- 4X+3Y+4Z=8
- 9X+3Y+4Z=7

$$A = \begin{bmatrix} 1 & 1 & 1 \\ \circled{4} & 3 & 4 \\ \circled{9} & 3 & 4 \end{bmatrix} \qquad b = \begin{bmatrix} 3 \\ 8 \\ 7 \end{bmatrix}$$

Augmented Matrix $\bar{A} = [A \,|\, b]$

$$\bar{A} = \left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 4 & 3 & 4 & 8 \\ 9 & 3 & 4 & 7 \end{array}\right] \xrightarrow{R_2-4R_1} \begin{bmatrix} 1 & 1 & 1 & 3 \\ 0 & -1 & 0 & -4 \\ 0 & -6 & -5 & -20 \end{bmatrix}$$

$$\xrightarrow{R_3-6R_2} \begin{bmatrix} 1 & 1 & 1 & 3 \\ 0 & -1 & 0 & -4 \\ 0 & 0 & -5 & 4 \end{bmatrix}$$

$-5z = 4$

$\boxed{z = -4/5}$

$\boxed{y = \cancel{-}4}$

$x + y + z = 3$

$x = 3 - 4 + 4/5$