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How to use Gaussian elimination to solve system of equations.

My example: $\begin{cases} x + y + 2z + t = 5 \\ 2x + 3y - z - 2t = 2 \\ 4x + 5y + 3z = 7 \end{cases}$

I can rewrite the above data as three matrices:

$$A = \begin{bmatrix} 1 & 1 & 2 & 1 \\ 2 & 3 & -1 & -2 \\ 4 & 5 & 3 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 5 \\ 2 \\ 7 \end{bmatrix} \quad X = \begin{bmatrix} x \\ y \\ z \\ t \end{bmatrix}$$

I have to transform matrix $[A|B]$ into $[I \,\vdots\, \ldots \,|\, \begin{smallmatrix} x \\ y \\ z \\ \vdots \end{smallmatrix}]$ using elementary operations on matrices:

possibly some extra columns

$$\left[\begin{array}{cccc|c} 1 & 1 & 2 & 1 & 5 \\ 2 & 3 & -1 & -2 & 2 \\ 4 & 5 & 3 & 0 & 7 \end{array}\right] \begin{matrix} r_2 : r_2 - 2r_1 \\ r_3 : r_3 - 2r_2 \end{matrix} \rightarrow \left[\begin{array}{cccc|c} 1 & 1 & 2 & 1 & 5 \\ 0 & 1 & -5 & -4 & -8 \\ 0 & -1 & 5 & 4 & 3 \end{array}\right] \begin{matrix} \\ \\ r_3 : r_3 + r_2 \end{matrix} \rightarrow \left[\begin{array}{cccc|c} 1 & 0 & 7 & 5 & 13 \\ 0 & 1 & -5 & -4 & -8 \\ 0 & 0 & 0 & 0 & -5 \end{array}\right]$$

I want zeros here.

I want to have zero here.

$$0x + 0y + 0z + 0t = -5$$

$$0 = -5$$

it's a contradiction!

there are no solutions.