Homework #332

Theo Park

MA687- *Prof. Carl Gauss*

Due on: 32 April 1954

Problem 1

Hi students my name is Carl and use Gaussian elemination to find solution for

$$\left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 2 & 3 & 7 & 0 \\ 1 & 3 & -2 & 17 \end{array}\right]$$

I have no clue why they named it after me when I literally just copied and pasted from some random Asian math book

(23 Points)

Solution

Hello so this is my solution

$$\left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 2 & 3 & 7 & 0 \\ 1 & 3 & -2 & 17 \end{array}\right] \xrightarrow[R_3-R_1\to]{R_2-2R_1\to} \left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 2 & -3 & 14 \end{array}\right] \xrightarrow{R_3-2R_2\to} \left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 0 & -13 & 26 \end{array}\right] \xrightarrow[-13]{\frac{R_3}{}} \left[\begin{array}{cccc} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 0 & 1 & -2 \end{array}\right]$$

$$\begin{cases} x+y+z=3 \\ y+5z=-6 \\ z=-2 \end{cases} \quad \therefore \begin{cases} x=1 \\ y=4 \\ z=-2 \end{cases}$$ Hello so this is my solution

$$\left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 2 & 3 & 7 & 0 \\ 1 & 3 & -2 & 17 \end{array}\right] \xrightarrow[R_3-R_1\to]{R_2-2R_1\to} \left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 2 & -3 & 14 \end{array}\right] \xrightarrow{R_3-2R_2\to} \left[\begin{array}{ccc|c} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 0 & -13 & 26 \end{array}\right] \xrightarrow[-13]{\frac{R_3}{}} \left[\begin{array}{cccc} 1 & 1 & 1 & 3 \\ 0 & 1 & 5 & -7 \\ 0 & 0 & 1 & -2 \end{array}\right]$$

Problem 2

That was easy right? Because I am a good professor who assigns only 2 question per homework, here's the final questions.

- Find the inverse of