

Home work 1

Submission in class (Monday 28th August)

Solve the following systems using reduced row echelon form

Q.No.1

$$\begin{aligned}2x_1 - 3x_2 + 5x_3 &= 7 \\9x_1 - x_2 + x_3 &= -1 \\x_1 + 5x_2 + 4x_3 &= 0\end{aligned}$$

Q.No.2

$$\begin{aligned}x - y + 2z - w &= -1 \\2x + y - 2z - 2w &= -2 \\-x + 2y - 4z + w &= 1 \\3x &\quad - 3w = -3\end{aligned}$$

Q. No. 3

In each part, determine whether the given 3-tuple is a solution of the linear system

$$\begin{aligned}x + 2y - 2z &= 3 \\3x - y + z &= 1 \\-x + 5y - 5z &= 5\end{aligned}$$

a. $\left(\frac{5}{7}, \frac{8}{7}, 1\right)$

b. $\left(\frac{5}{7}, \frac{8}{7}, 0\right)$

c. $(5, 8, 1)$

d. $\left(\frac{5}{7}, \frac{10}{7}, \frac{2}{7}\right)$

e. $\left(\frac{5}{7}, \frac{22}{7}, 2\right)$