

36. Discuss the solution of the system:

$$y + z = 1, 2x - 2y - z = 0, 4x + 3y + 5z = 7$$

37. Discuss the solution by the use of augmented matrix:

$$\begin{bmatrix} 2 & -3 & 1 \\ 3 & 0 & 2 \\ 1 & 3 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 2 \\ 5 \\ 4 \end{bmatrix}$$

38. Find right inverses, if any, of the following matrices:

$$a) \begin{bmatrix} 2 & 0 \\ -1 & 3 \\ 1 & 1 \end{bmatrix} \quad b) [3, 7]$$

39. Find left inverses, if any, of the matrices given in Exercise 38.

40. Find the inverse of $\begin{bmatrix} a & b & b \\ 0 & d & e \\ 0 & 0 & f \end{bmatrix}$ ($adf \neq 0$)

41. Solve:

$$\begin{bmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 - 1 & b^2 - 1 & c^2 - 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ p \\ p^2 - 1 \end{bmatrix}$$

and evaluate

$$(a^2 - a)x + (b^2 - b)y + (c^2 - c)z - (p^2 - p)$$

42. Find the inverse of:

$$a) \begin{bmatrix} 2 & 1 & -1 \\ 0 & 2 & 1 \\ 5 & 2 & -3 \end{bmatrix} \quad b) \begin{bmatrix} 1 & 0 & 2 \\ 2 & -1 & 3 \\ 0 & 1 & 8 \end{bmatrix}$$

43. Find $x, y \in \mathbb{R}$, if any:

$$\begin{bmatrix} 2 & 3 & 1 \\ 0 & -2 & 4 \end{bmatrix} \begin{bmatrix} x & y \\ 2x & -y \\ -x & 3y \end{bmatrix} = \begin{bmatrix} 14 & 2 \\ -16 & 14 \end{bmatrix}$$