Q.1]A) Solve the following system by Gauss elimination:

Subgrades

$$x_1 + 3x_3 = 1$$
 ...(1)  
 $3x_1 + 3x_2 + x_3 = 0$  ...(2)

[AIB] = 
$$\begin{bmatrix} 1 & 0 & 3 & | & 1 \\ 3 & 3 & | & | & 0 \end{bmatrix}$$
  $3R_1+R_2$   $\begin{bmatrix} 1 & 0 & 3 & | & 1 \\ 3 & 3 & -8 & | & 3 \end{bmatrix}$ 

$$\frac{1}{3}R_2$$

$$\begin{bmatrix} 0 & 3 & 1 \\ 0 & 1 & -\frac{8}{3} & -1 \end{bmatrix}$$

$$x_1 = 1 - 3x_3$$

$$x_2 - \frac{8}{3}x_3 = -1$$

$$x_2 = -1 + \frac{8}{3}x_3$$

$$3x + y - 14 = 0 ...(1)$$

Q.1]B) Solve the following system by invertibility method: 
$$3x+y-14=0...(1)$$
  
 $-y+\frac{1}{x}=-3-y...(2)$ 

$$-y + \frac{1}{4}x = -3 - y ...(2)$$

SOL

edg

res

e co

res

urc

dge

Solution) 
$$A = \begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix}$$
  $X = \begin{bmatrix} x \\ y \end{bmatrix}$   $B = \begin{bmatrix} 1y \\ 2x \end{bmatrix}$   $A = \begin{bmatrix} 1y \\ 2x$ 

$$\begin{bmatrix} 0 & 4 \\ 1 & -12 \end{bmatrix} \begin{bmatrix} 14 \\ -3 \end{bmatrix} = \begin{bmatrix} -12 \\ 50 \end{bmatrix}$$

-2- 14 + 36 = 50

Q.2]A) Let A be invertible matrix, with 
$$adj(A) = \begin{bmatrix} 2 & -4 \\ 5 & 2 \end{bmatrix}$$
,  $det(3A) = 27$ , evaluate  $A^{-1}$ .

$$\hat{A} = \frac{1}{9} \begin{bmatrix} 2 - 9 \\ 5 2 \end{bmatrix} = \begin{bmatrix} \frac{2}{9} & \frac{9}{9} \\ \frac{5}{9} & \frac{2}{9} \end{bmatrix}$$

Solution)

M25 -1)

det= 3

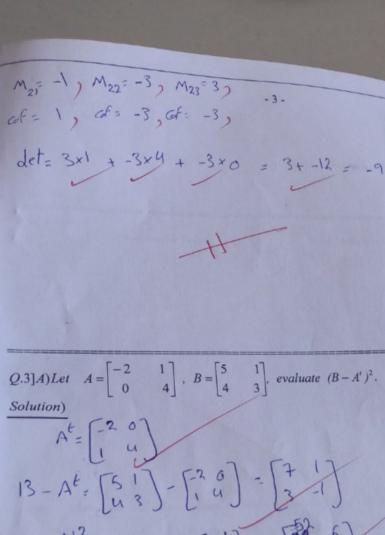
Q.3]A)Lei

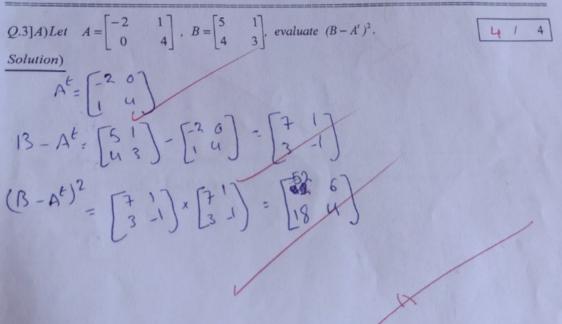
Solution

13

(1

31





Q.3]B)Write (3×3) matrix which is symmetric with nonzero entries.

Solution)

Solution

A 5 7 6 7 8 6 8 5 6 8 5

