

id: 17-35626-3

Q2:

$$2x + y - z = 1$$

$$3x + y + 2z = 8$$

$$4x - 3y + z = 1$$

	S	B
PS-5	288	1
PO-5	288	0

X	Y	Z	R.H.S
1	-0.75	0.25	0.25
1	.93	.667	2.67
1	.5	-.5	.5
<hr/>			
$(E_2 - E_1)$	0	1.08	.417
$(E_3 - E_1)$		1.25	-.75

$$1.08y + .417z = 2.42 \quad \text{--- } E_4$$

$$1.25y - .75z = .25 \quad \text{--- } E_5$$

$$288 = 526 + 875 - x$$

$$288 = 510 + 80.1 - x$$

S - 35222 - 51 61

y	z	RHS
1	-0.6	0.2
1	0.386	2.24
0	0.986	2.04

→ Pivoting Equation

$$1 = S - Y + X S$$

$$X = S S + Y + X S$$

$$1 = S + X S - X S$$

$$\therefore 0.986 z = 2.04$$

$$z = 2.067$$

$$\therefore y - 0.6z = 0.2$$

$$\Rightarrow y - 0.6 \times 2.067 = 0.2$$

$$\Rightarrow y = 0.2 + 1.241$$

$$\Rightarrow y = 1.44$$

putting the value y and z in E₁

$$X - 0.75y + 0.25z = 0.25$$

$$\Rightarrow X - 1.08 + 0.517 = 0.25$$

$$3x = 8.13$$

Mat Lab code :-

$$\therefore x = 8.13,$$

$$y = 1.44$$

$$z = 2.067$$

$$A = \begin{bmatrix} 2 & 1 & -1; \\ 3 & 1 & +2; \\ 4 & -3 & +2 \end{bmatrix};$$

$$b = [1; 8; 1]$$

$$\text{sol} = A \setminus b$$

justify

$$2x + y - z = .999 \approx 1$$

$$3x + y + 2z = 8.013 \approx 8$$

$$4x - 3y + z = .999 \approx 1$$

Q1:

$$3x + 5y - 2z = 1 \quad \text{--- (1)} \quad |3| < |5| + |2|$$

$$4x - 2y + 8z = 10 \quad \text{--- (2)} \quad |4| < |2| + |8|$$

$$5x - 10y + 3z = 8 \quad \text{--- (3)} \quad |5| < |10| + |3|$$

Solⁿ: (a) The above system is not diagonally

Dominant

$$\textcircled{1} + \textcircled{3} \quad 8x - 5y + z = 9 \quad |8| > |5| + |1|$$

$$5x - 10y + 3z = 8 \quad |5| > |10| + |3|$$

$$4x - 2y + 8z = 10 \quad |4| > |2| + |8|$$

(b) Gauss saidel iterative formula.

$$x_{n+1} = \frac{1}{8} (9 + 5y_n - z_n)$$

$$y_{n+1} = -\frac{1}{10} (8 - 5x_{n+1} - 3z_n)$$

$$z_{n+1} = \frac{1}{8} (10 - 4x_{n+1} + 2y_{n+1})$$

$$\textcircled{9} \quad x_0 = 3.5, \quad y_0 = 1, \quad z_0 = .5$$

$$13-1+10 \leq 18 \quad x_1 = 1.688 \quad y_1 = .194 \quad z_1 = .455$$

$$13-1+10 \leq 18 \quad x_2 = 1.180 \quad y_2 = -.069 \quad z_2 = .638$$

$$2 \quad x_3 = 1.002 \quad y_3 = -.1080 \quad z_3 = .722$$

$$3 \quad x_4 = .967 \quad y_4 = -.1099 \quad z_4 = .7415$$

$$11+12 \leq 18 \quad p = 5 + 12 - 18 \quad \textcircled{10}$$

$$10+12 \leq 18 \quad q = 4 + 12 - 18$$

$$13-1+10 \leq 18 \quad o = 5 + 10 - 18$$

$$\text{alternativ grundalet för att} \quad \textcircled{11}$$

$$(n \cdot 5 - n \cdot 10 + 1) \cdot \frac{1}{2} = 1000$$

$$(n \cdot 5 - n \cdot 10 + 1) \cdot \frac{1}{2} = 1000$$

$$(1000 + 1000 - 1) \cdot \frac{1}{2} = 1000$$