Solvation by Gruss Elimination D

In this method, the unknown rose
eliminated successively & the system
is reduced to upper tricing when system
(upper tricing when we kind) from which the
unknowny can be tound by back substituting
substitution.

Publicans:
Solve the Penerr System by Gruss Elimination:

 $29\mu p_{00} = 80$ $10\mu^{5} + 92\mu^{3} = 60$

Possider the symethed matrix $A = \begin{bmatrix}
1 & -1 & 1 & 0 \\
-1 & 1 & -1 & 0 \\
0 & 10 & 25 & 90 \\
20 & 10 & 0 & 80
\end{bmatrix}$ Reduce It to

The symbol sy

which is in upper trangular from.

Back Pubskitudion:

Consider the Epinivelend- System A. Epvedom

$$\begin{bmatrix} 1 & -1 & 1 \\ 0 & 30 & -20 \\ 0 & 0 & 95/3 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} m_1 \\ m_2 \\ m_3 \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 \\ 90/3 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

$$\frac{1}{30m_2 - 20m_3} = 80 - 9(1)$$

$$\frac{95}{3}m_3 = \frac{190}{3} \longrightarrow (3)$$

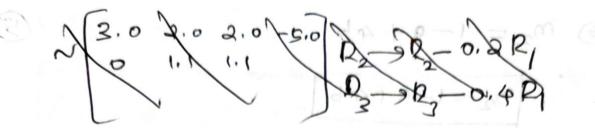
$$\frac{1}{2} = 2$$

mon (2), 30 m2 = 80 + 20 m3

$$m_2 = \frac{1}{30} \left[80 + 20 m_3 \right]$$

$$= \frac{1}{30} \left[80 + 20 \times 2 \right]$$

$$= \frac{1}{30} \left[30 + 40 \right] = \frac{120}{30}$$



which is upper transmen from.

Now, consider the Equivalent System of equation of follow:

$$\begin{bmatrix} 3.0 & 3.0 & 3.0 & -5.0 \\ 0 & 1.1 & 1.1 & -4.4 \\ 0 & 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ w_4 \end{bmatrix} = \begin{bmatrix} 8.0 \\ 1.1 \\ 0 \end{bmatrix}$$

$$3.0 m_1 + 2.0 m_2 + 2.0 m_3 - 5.0 m_4 = 8.0 - 9(1)$$

$$1.1 m_2 + (.1 m_3 - 4.4 m_4 = 1.1 - 9(2)$$

Mon, m, & m2 on Leading Vimebly & m3 & mp one free Vimitaly.

Choose $m_2 = a$, $m_{\phi} = b$ where a & b

The mbitrary

deal numbers.

From (2) $1.1 m_2 = 1.1 - 1.1 m_3 + 4.4 m_{\phi}$ $\implies M_2 = 1 - M_3 + 4 M_{\phi}$

 $=) m_2 = 1 - a + 4b$ $m_2 = 1 - a + 4b$

 $3 \cdot 0 = \frac{1}{3 \cdot 0} \left[8 \cdot 0 - 2 \cdot 0 \cdot 0 \right]$ $= \frac{1}{3} \left[8 - 2 + 2 \cdot 6 - 8 \cdot 0 - 2 \cdot 0 \cdot 0 - 2 \cdot 0 \cdot 0 \right]$ $= \frac{1}{3} \left[6 - 3 \cdot 0 \right]$ $= \frac{1}{3} \left[6 - 3 \cdot 0 \right]$

Now consider (d-8=1M), elint spread

Thus, by Boele substitution, We found
the solution of the given substance of & b one substant red numbers.
There are bound substant red numbers.
There are bound of the given
There are bound infinitely many solutions.

3) Solve the Fineer System by Frus-

 $e^{4} + e^{4} + e^{3} = 6$ $e^{4} + e^{4} + e^{3} = 6$ $e^{4} + e^{4} + e^{3} = 6$

a min + m-1

Consider the within equition Am=b of

$$\begin{bmatrix} 3 & 2 & 4 \\ 2 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix} \begin{bmatrix} 3 & 6 \\ 2 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix} = \begin{bmatrix} 6 \\ 3 & 0 \\ 3 & 1 & 1 \end{bmatrix}$$

Consider the Anymorted me his A seduce the System into on Upper disyulon form,

$$X = \begin{bmatrix} 3 & 2 & 1 & 3 \\ 2 & 1 & 1 & 0 \\ 6 & 2 & 4 & 6 \end{bmatrix}$$

is opper trjenten tom. Nov, consider the Equivalent System of.

equation a follows:

3 m + 3 m 2 + w3 = 3 -> () -13m2+13m3=-2-10 om 40m240m3=12-3) (3) 1, a felre statement (0=12), while as

Procedia Problems

1) Using Gangs elimination method, solve the Pinear System of equations:

$$3n + 3y + 3z = 3$$
 $3n - 5y + 5z = 2$
 $2n + 9y - z = 4$

2) Using Gens elimination method and the salvations

$$2m-2=2$$
 $2m-2y=5$

3) Using Forst elimination method, solve the

4) Using garys elimination method, solve the