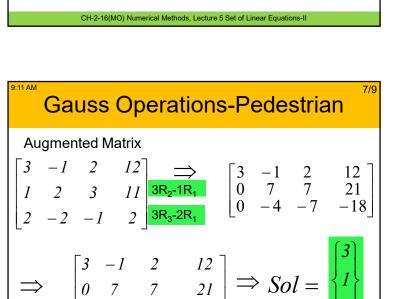


Upper Triangular Matrix-Sol-III $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 1 & 7 \\ 0 & 0 & -1 \end{bmatrix} \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix} = \begin{pmatrix} -8 \\ -2 \\ 20 \end{pmatrix}$ Sol

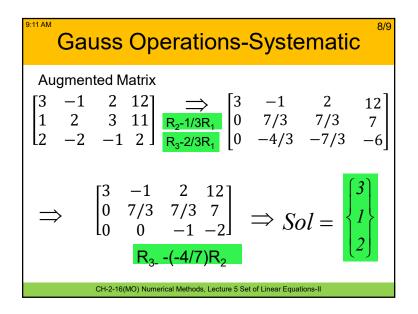
$$\begin{cases} x_1 \\ x_2 \\ x_3 \end{cases} = \begin{cases} 11 \\ 5 \\ 4 \end{cases}$$



 $\Rightarrow \begin{bmatrix} 3 & -1 & 2 & 12 \\ 0 & 7 & 7 & 21 \\ 0 & 0 & -21 & -42 \end{bmatrix} \Rightarrow Sol = \begin{bmatrix} 3 \\ 1 \\ 2 \end{bmatrix}$

CH-2-16(MO) Numerical Methods, Lecture 5 Set of Linear Equations-II

Gauss Elimination-I
$$\begin{bmatrix}
3 & -1 & 2 \\
1 & 2 & 3 \\
2 & -2 & -1
\end{bmatrix}
\begin{bmatrix}
x_1 \\
x_2 \\
x_3
\end{bmatrix} = \begin{bmatrix}
12 \\
11 \\
2
\end{bmatrix}$$
Sol =
$$\begin{bmatrix}
3 \\
1 \\
2
\end{bmatrix}$$
Augmented Matrix
$$\begin{bmatrix}
3 & -1 & 2 & 12 \\
1 & 2 & 3 & 11 \\
2 & -2 & -1 & 2
\end{bmatrix}$$
CH-2-16(MO) Numerical Methods. Lecture 5 Set of Linear Equations-II



```
9:11 AM
                  Gauss Operation
   Read N, a(N,N), b(N)
           do 10 \text{ k} = 1, \text{n-1}
   c ***** Row operation loop begins
             do 20 l= k+1,N
                factor=a(i,k)/a(k,k)
   c ***** column operations
                do 30 j = k+1,n
                    a(i,j)=a(i,j)-factor*a(k,j)
                 enddo
                b(i)=b(i)-factor*b(k)
              enddo
           enddo
   c ***** This completes Gauss
   Append Upper Triangular Matrix Solver
             CH-2-16(MO) Numerical Methods, Lecture 5 Set of Linear Equations-II
```