

SOLVE SIMULTANEOUS LINEAR EQUATION USING CROUT'S METHOD

2. Solve
$$\begin{aligned} 2x + y - 3z &= 5 \\ 4x - 2y + 2z &= -2 \\ 14x + 6y + 5z &= 8 \end{aligned}$$
 Using Crout's Method

SOLUTION

$AX = B$

$$\begin{bmatrix} & & \\ & & \\ & & \end{bmatrix} \begin{bmatrix} \\ \\ \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$A = LU$

$$\begin{bmatrix} & & \\ & & \\ & & \end{bmatrix} = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix} \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$$= \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$$

$a =$	$ag =$	$ah =$
	$g =$	$h =$
$b =$	$bg + c =$ $(\quad)(\quad) + c =$ $c =$	$bh + ci =$ $(\quad)(\quad) + (\quad)i =$ $i =$
$d =$	$dg + e =$ $(\quad)(\quad) + e =$ $e =$	$dh + ei + f =$ $(\quad)(\quad) + (\quad)(\quad) + f =$ $f =$

So the value of $L = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$ and $U = \begin{bmatrix} & & \\ & & \\ & & \end{bmatrix}$

$$LY = B$$

$$\begin{bmatrix} & & \\ & & \\ & & \end{bmatrix} \times \begin{bmatrix} y_1 \\ y_2 \\ y_3 \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$\begin{bmatrix} ()y_1 \\ ()y_1 - ()y_2 \\ ()y_1 - ()y_2 - ()y_3 \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$y_1 = \quad y_2 = \quad y_3 =$$

$$UX = Y$$

$$\begin{bmatrix} & & \\ & & \\ & & \end{bmatrix} \times \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$\begin{bmatrix} ()x + ()y + ()z \\ ()y - ()z \\ ()z \end{bmatrix} = \begin{bmatrix} \\ \\ \end{bmatrix}$$

$$z = \quad y = \quad x =$$