

## 5.2.7

**EE25BTECH11004 - Aditya Appana**

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### Question

Find the value of  $x$ , if

$$3x + y = 1$$

$$2y - x = -5$$

### Solution

Organizing the given equations into an augmented matrix:

$$\begin{pmatrix} 3 & 1 & 1 \\ -1 & 2 & -5 \end{pmatrix} \quad (1)$$

Performing row operations:

$$\begin{pmatrix} 3 & 1 & 1 \\ -1 & 2 & -5 \end{pmatrix} \xrightarrow{R_1 \rightarrow R_1 - \frac{1}{2}R_2} \begin{pmatrix} \frac{7}{2} & 0 & \frac{7}{2} \\ -1 & 2 & -5 \end{pmatrix} \quad (2)$$

Solving, we get the value of  $x$  as 1.