

### Question 25

**Solution:** We are row reducing the augmented matrix:

$$\left[ \begin{array}{ccc|c} 1 & -1 & 3 & 3 \\ -2 & 3 & -11 & -4 \\ 1 & -2 & 8 & 6 \end{array} \right]$$

$$\xrightarrow{R_2 := R_2 - \frac{-2}{1} \times R_1} \left[ \begin{array}{ccc|c} 1 & -1 & 3 & 3 \\ 0 & 1 & -5 & 2 \\ 1 & -2 & 8 & 6 \end{array} \right]$$

$$\xrightarrow{R_3 := R_3 - \frac{1}{1} \times R_1} \left[ \begin{array}{ccc|c} 1 & -1 & 3 & 3 \\ 0 & 1 & -5 & 2 \\ 0 & -1 & 5 & 3 \end{array} \right]$$

$$\xrightarrow{R_1 := R_1 - \frac{-1}{1} \times R_2} \left[ \begin{array}{ccc|c} 1 & 0 & -2 & 5 \\ 0 & 1 & -5 & 2 \\ 0 & -1 & 5 & 3 \end{array} \right]$$

$$\xrightarrow{R_3 := R_3 - \frac{-1}{1} \times R_2} \left[ \begin{array}{ccc|c} 1 & 0 & -2 & 5 \\ 0 & 1 & -5 & 2 \\ 0 & 0 & 0 & 5 \end{array} \right]$$