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Ques # 9.

Given, $\text{Aug}(A) = \left(\begin{array}{ccc|c} 1 & 2 & 1 & 0 \\ 1 & -2 & 2 & 4 \\ 2 & 12 & -2 & 4 \end{array}\right)$

Here $m_{21} = \frac{a_{21}}{a_{11}} = 1.$

$m_{31} = \frac{a_{31}}{a_{11}} = 2.$

$\therefore F^{(1)} = \begin{pmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \\ -2 & 0 & 1 \end{pmatrix}$ (Ans).

Ques # 10

Now $A^{(2)} = F^{(1)} \times A.$

$= \begin{pmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \\ -2 & 0 & 1 \end{pmatrix} \begin{pmatrix} 1 & 2 & 1 \\ 1 & -2 & 2 \\ 2 & 12 & 2 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 1 \\ 0 & -4 & 1 \\ 0 & 8 & -4 \end{pmatrix}$

Now in $A^{(2)}$, the multiplier $m_{32} = \frac{8}{-4} = -2$

$F^{(2)} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 2 & 1 \end{pmatrix}$ (Ans)