

Question

Find the inverses of

$$(i) \begin{pmatrix} 2 & 4 & 1 \\ 1 & 1 & 1 \\ 2 & 3 & 1 \end{pmatrix}$$

$$(ii) \begin{pmatrix} 5 & 15 & -10 \\ -2 & -2 & -4 \\ 3 & 4 & 1 \end{pmatrix}$$

$$(iii) \begin{pmatrix} 1 & -2 & 1 & -5 \\ 3 & -6 & 4 & -14 \\ -2 & 4 & -4 & 9 \\ 4 & -7 & 5 & -18 \end{pmatrix}$$

Check your answer by multiplication.

Answer

$$(i) \text{ Inverse} = \begin{pmatrix} -2 & -1 & 3 \\ 1 & 0 & -1 \\ 1 & 2 & -2 \end{pmatrix}$$

$$(ii) \text{ Inverse} = \begin{pmatrix} -\frac{7}{30} & \frac{11}{12} & \frac{4}{3} \\ \frac{5}{30} & -\frac{7}{12} & -\frac{2}{2} \\ \frac{1}{30} & -\frac{5}{12} & -\frac{1}{3} \end{pmatrix}$$

$$(iii) \text{ Inverse} = \begin{pmatrix} -14 & 5 & 4 & 2 \\ 3 & -3 & -1 & 1 \\ 1 & -1 & -1 & 0 \\ -4 & 2 & 1 & 0 \end{pmatrix}$$