

Related Problem with solution :

Q)

Evaluate the determinant

$$(i) \begin{vmatrix} 3 & -1 & -2 \\ 0 & 0 & -1 \\ 3 & -5 & 0 \end{vmatrix}$$

Soln :

$$(i) \text{ Let } A = \begin{vmatrix} 3 & -1 & -2 \\ 0 & 0 & -1 \\ 3 & -5 & 0 \end{vmatrix}$$

It can be observed that in the second row, two entries are zero. Thus, we expand along the second row for easier calculation.

Hence,

$$\begin{aligned} |A| &= -0 \begin{vmatrix} -1 & -2 \\ -5 & 0 \end{vmatrix} + 0 \begin{vmatrix} 3 & -2 \\ 3 & 0 \end{vmatrix} - (-1) \begin{vmatrix} 3 & -1 \\ 3 & -5 \end{vmatrix} \\ &= (-15 + 3) \\ &= -12 \end{aligned}$$