

Value of determinant in terms of minor and co-factor

$$\Delta = \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix}$$

- Sum of product of elements of a row (column) and corresponding co-factors of elements of the same row (column) gives value of determinant .

$$a_{11}C_{11} + a_{12}C_{12} + a_{13}C_{13} = \Delta$$

- Sum of product of elements of a row (column) and corresponding co-factors of elements of any other row (column) is zero.

$$a_{11}C_{21} + a_{12}C_{22} + a_{13}C_{23} = 0$$