Properties of determinant

- If corresponding elements of any two rows (or columns) are identical (or proportional), then value of determinant is zero .

Example:

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

$$\Rightarrow \Delta = a_{11}(a_{21}a_{33} - a_{23}a_{31}) - a_{11}(a_{21}a_{33} - a_{31}a_{23}) + a_{13}(a_{21}a_{31} - a_{31}a_{21})$$

$$\Rightarrow \Delta = 0$$

$$\Delta = \begin{vmatrix} \sqrt{3} & \sqrt{5} & \sqrt{7} \\ 1 & 2 & 3 \\ \sqrt{3} & \sqrt{5} & \sqrt{7} \end{vmatrix} = 0$$

Return To Top