



$$\Delta_1 = \begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{vmatrix} \text{ \& } \Delta_2 = \begin{vmatrix} 1 & a & bc \\ 1 & b & ca \\ 1 & c & ab \end{vmatrix}, \text{ then } \Delta_2 - \Delta_1 \text{ is :}$$

Solution:

$$\Delta_2 = \begin{vmatrix} 1 & a & bc \\ 1 & b & ca \\ 1 & c & ab \end{vmatrix} \qquad \Delta_1 = \begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{vmatrix}$$

Multiply 1<sup>st</sup> column by  $a$  and divide  $\Delta_2$  by  $a$ .

Multiply 2<sup>nd</sup> column by  $b$  and divide  $\Delta_2$  by  $b$ .

Multiply 3<sup>rd</sup> column by  $c$  and divide  $\Delta_2$  by  $c$ .

$$\Delta_2 = \frac{1}{abc} \begin{vmatrix} a & a^2 & abc \\ b & b^2 & abc \\ c & c^2 & abc \end{vmatrix} = \frac{abc}{abc} \begin{vmatrix} a & a^2 & 1 \\ b & b^2 & 1 \\ c & c^2 & 1 \end{vmatrix} = - \begin{vmatrix} a & 1 & a^2 \\ b & 1 & b^2 \\ c & 1 & c^2 \end{vmatrix} = \begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix}$$

$$\Delta_2 = \Delta_1$$

A

$$(a + b + c) \Delta_1$$

B

$$\Delta_1$$

C

$$0$$

D

$$abc \Delta_1$$