

Determinants (सारणीक)

① If $\begin{vmatrix} a & b & c \\ m & n & p \\ x & y & z \end{vmatrix} = k$, Then $\begin{vmatrix} 6a & 2b & 2c \\ 3m & n & p \\ 3x & y & z \end{vmatrix}$ is equal to

- ① $\frac{k}{6}$ ② $2k$ ③ $3k$ ④ $6k$

② The value of $\begin{vmatrix} 5^2 & 5^3 & 5^4 \\ 5^3 & 5^4 & 5^5 \\ 5^4 & 5^5 & 5^6 \end{vmatrix}$ is

① 5^2 ② 0
③ 5^{13} ④ 5^9

③ If w is a complex cube root of unity then the value of determinant $\Delta = \begin{vmatrix} 1 & w & w^2 \\ w & w^2 & 1 \\ w^2 & 1 & w \end{vmatrix}$

① 1 ② 0
③ w^2 ④ w

④ The value of $\Delta = \begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix}$ is

① 1 ② -1
③ $a+b+c$ ④ 0

⑤ The value of $\Delta = \begin{vmatrix} b-c & c-a & a-b \\ c-a & a-b & b-c \\ a-b & b-c & c-a \end{vmatrix}$ is

① $a+b+c$ ② 0
③ 1 ④ N.O.T

⑥ The value of $\Delta = \begin{vmatrix} \sin \alpha & \cos \alpha & \sin(\alpha+\delta) \\ \sin \beta & \cos \beta & \sin(\beta+\delta) \\ \sin \gamma & \cos \gamma & \sin(\gamma+\delta) \end{vmatrix}$ is

① 0 ② 1
③ 2 ④ 3

⑦ The value of $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix}$ is

① $(a-b)(b-c)(c-a)$ ② N.O.T
③ $(a^2-b^2)(b^2-c^2)(c^2-a^2)$
④ $(a+b-c)(b+c-a)(c+a-b)$

⑧ $\Delta = \begin{vmatrix} a+x & b & c \\ b & x+c & a \\ c & a & x+b \end{vmatrix}$ which of the following is a factor for the above determinant.

- ① $x-(a+b+c)$ ② $x+(a+b+c)$ ③ $a+b+c$ ④ $-(a+b+c)$

⑨ The value of $\begin{vmatrix} a^2 & -ab & -ac \\ -ab & b^2 & -bc \\ ca & bc & -c^2 \end{vmatrix}$ is

① $4a^2b^2c^2$ ② $4b^2c^2$
③ $4c^2a^2$ ④ $4a^2b^2c^2$

⑩ The value of $\Delta = \begin{vmatrix} 1 & 1+ac & 1+bc \\ 1 & 1+ad & 1+bd \\ 1 & 1+ae & 1+be \end{vmatrix}$ is

① 1 ② 0
③ 3 ④ $a+b+c$

(11) Find the value of
$$\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+a & 1 \\ 1 & 1 & 1+b \end{vmatrix}$$

- (a) 1 (b) 0 (c) ab (d) NOT

(12) Find the value of
$$\begin{vmatrix} 1 & 1 & 1 \\ 1 & 6 & 1 \\ 1 & 1 & 7 \end{vmatrix}$$

- (a) 30 (b) 42
(c) 13 (d) 14

(13) Find the value of
$$\begin{vmatrix} \frac{1}{a} & a & bc \\ \frac{1}{b} & b & ca \\ \frac{1}{c} & c & ab \end{vmatrix}$$

- (a) 1 (b) 0
(c) abc (d) NOT