VIDYA SHREE ACADEMY
═══ SR. SEC. SCHOOL ═══
An English Medium Co.Ed. School | Science & Commerce

VSA — A Real English Medium School

Little Steps — Pre Primary wing of VSA

W : www.vsajaipur.com | E : vsajaipur@gmail.com M. : +91 9460356652, 8058999828
Add. : 84, Krishna Vihar, Behind Narayan Niwas, Gopalpura Bypass, Jaipur - 302015
f /vsajaipur | /vsajaipur | /vidyashreeacademy | /vsa_jaipur

Class – 12ᵗʰ   **Chapter-4**   **Subject Maths**

Worksheet-15   **Determinant**

1. Evaluate the following $\begin{vmatrix} 1 & \log_x y & \log_x z \\ \log_y x & 1 & \log_y z \\ \log_z x & \log_z y & 1 \end{vmatrix}$ without expansion.

2. Prove that $\begin{vmatrix} (b+c)^2 & a^2 & a^2 \\ b^2 & (c+a)^2 & b^2 \\ c^2 & c^2 & (a+b)^2 \end{vmatrix} = 2abc(a+b+c)^3.$

3. Prove that $\begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}^2 = \begin{vmatrix} 2bc-a^2 & c^2 & b^2 \\ c^2 & 2ac-b^2 & a^2 \\ b^2 & a^2 & 2ab-c^2 \end{vmatrix}$

4. Find the minor of the elements of second row of determinant $\begin{vmatrix} 2 & 3 & 4 \\ 3 & 6 & 5 \\ 1 & 8 & 9 \end{vmatrix}$

5. Evaluate the determinant $\begin{vmatrix} 0 & b^2 a & c^2 a \\ a^2 b & 0 & c^2 b \\ a^2 c & b^2 c & 0 \end{vmatrix}$

6. Solve the following determinant: $\begin{vmatrix} x-2 & 2x-3 & 3x-4 \\ x-4 & 2x-9 & 3x-16 \\ x-8 & 2x-27 & 3x-64 \end{vmatrix} = 0.$

7. If ω is the cube root of unity then find the value of the determinant $\begin{vmatrix} 1 & \omega^3 & \omega^2 \\ \omega^3 & 1 & \omega \\ \omega^2 & \omega & 1 \end{vmatrix}$