

DETERMINANTS

AREA OF TRIANGLE

EXERCISE

Q.1 For any ΔABC , the value of determinant $\begin{vmatrix} \sin^2 A & \cot A & 1 \\ \sin^2 B & \cot B & 1 \\ \sin^2 C & \cot C & 1 \end{vmatrix}$ is-

(A) 0

(B) 1

(C) $\sin A \sin B \sin C$

(D) $\sin A + \sin B + \sin C$

Q.2 Which of the following is the formula for finding the area of a triangle with the vertices (x_1, y_1) , (x_2, y_2) , (x_3, y_3) .

$$(a) \Delta = \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$$

$$(b) \Delta = \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 0 \\ x_3 & y_3 & 1 \end{vmatrix}$$

$$(c) \Delta = \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & 1 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$$

$$(d) \Delta = \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$$

Q.3 What is the area of the triangle whose vertices are $(0,1)$, $(0,2)$, $(1,5)$?

(a) 1 sq.unit

(b) 2 sq.units

(c) $\frac{1}{3}$ sq.units

(d) $\frac{1}{2}$ sq.units

Q.4 The area of the triangle formed by three collinear points is zero.

(a) True

(b) False

Q.5 Find the value of k for which $(1,2)$, $(3,0)$, $(2,k)$ are collinear.

(a) 0

(b) -1

(c) 2

(d) 1

- Q.6** What is the area of the triangle if the vertices are (0,2), (0, 0), (3, 0)?
(a) 1 sq.unit (b) 5 sq.units
(c) 2 sq.units (d) 3 sq.units
- Q.7** Find the equation of the line joining A(2,1) and B(6,3) using determinants.
(a) $2y-x=0$ (b) $2y-x=0$
(c) $y-x=0$ (d) $y-2x=0$
- Q.8** Find the area of the triangle with the vertices (2,3), (4,1), (5,0).
(a) 3 sq.units (b) 2 sq.units
(c) 0 (d) 1 sq.unit
- Q.9** Find the equation of the line joining A(5,1), B(4,0) using determinants.
(a) $4x-y=4$ (b) $x-4y=4$
(c) $x-y=4$ (d) $x-y=0$
- Q.10** Find the value of k for which the points (3,2), (1,2), (5,k) are collinear.
(a) 2 (b) 5
(c) 4 (d) 9

ANSWER KEY

1. (a)
2. (d)
3. (d)
4. (a)
5. (d)
6. (d)

7. (a)

8. (c)

9. (c)

10. (A)