COORDINATE GEOMETRY

Q.1) The ratio in which the line segment joining (2, –3) and (5, 6) is divided by (i) x-axis (ii) y-axis is

(A) 1 : 2 (internal), 2 : 5 (external)

(B) 1 : 2 (internal), 2 : 5 (internal)

(C) 1 : 2 (external), 2 : 5 (internal)

(D) 1 : 2 (external), 2 : 5 (external)

Q.2) The points (–2, –5), (2, –2), (8, a) are collinear, then the value of a is

(A) $-\frac{5}{2}$ (B) $\frac{5}{2}$

(C) $\frac{3}{2}$ (D) $\frac{1}{2}$

Q.3) The area of the triangle with vertices at the points (a, b + c), (b, c + a), (c, a + b) is

(A) 0 (B) a + b + c

(C) ab + bc + ca (D) $\frac{1}{a}+\frac{1}{b}+\frac{1}{c}$

Q.4) If P(1, 2), Q(4, 6), R(5, 7) and S(a, b) are vertices of a parallelogram PQRS, then

(A) a = 2, b = 4 (B) a = 3, b = 4

(C) a = 2, b = 3 (D) a = 3, b = 5

Q.5) The medians of a triangle meet at (0, –3) and two vertices are at (–1, 4) and (5, 2). Then the third vertex is at

(A) (4, 15) (B) (–4, –15)

(C) (–4, 15) (D) (4, –15)

Q.6) The value of k if the point P(–1, 2) is equidistant from the points A(2, k) and B(k, –1) is

(A) $\frac{1}{3}$ (B) $\frac{1}{2}$

(C) $\frac{1}{4}$ (D) $\frac{1}{5}$

Q.7) If (2, 2p + 2) is the mid-point of (3p, 4) and (–2, 2q), the value of p and q are

(A) 2, 4 (B) 3, 6

(C) 7, 9 (D) 8, 10

Q.8) The co-ordinates of mid points of the sides of a triangle are (4, 2), (3, 3) and (2, 2). Then the coordinate of the centroids of the triangle are

(A) $\left(3,\frac{7}{3}\right)$ (B) (3, 3)

(C) (4, 3) (D) (1, 2)

Q.9) The ratio in which the line x + 2y – 4 = 0 divides the join of (–1, 3) and (3, –1) is

(A) 1 : 2 (B) 1 : 4

(C) 1 : 3 (D) 1 : 5

Q.10) Length of the median from B on AC where A(-1, 3), B(1, -1), (5, 1) is

(A) $\sqrt{18}$ (B) $\sqrt{10}$

(C) $2\sqrt{3}$ (D) 4

Q.11) The distance between the points (a cos 20^0 + b sin 20^0,0) and (a sin 20^0 - b cos 20^0) is :

(A) (a + b) (B) (a – b)

(C) $\sqrt{a^2-b^2}$ (D) $\sqrt{a^2+b^2}$

Q.12) The co-ordinates of the points which divides the join of (–2, 2) and (–5, 7) in the ratio 2 : 1 is :

(A) (4, – 4) (B) (–3, 1)

(C) (–4, 4) (D) (1, –3).

Q.13) The points (- 2, 2), (8, - 2) and (-4, - 3) are the vertices of a :

(A) equilateral Δ (B) isosceles Δ

(C) right Δ (D) None of these

Q.14) Two vertices of a triangle are (-2, -3) and (4, -1)

and centroid is at the origin. The coordinates of the third vertex of the triangle are:

(A) (– 2, 3) (B) (–3, – 2)

(C) (–2, 4) (D) (4, –2)

Q.15) Three consecutive vertices of a parallelogram are (1, –2), (3, 6) and (5, 10). The coordinates of the fourth vertex are :

(A) (–3, 2) (B) (2,– 3)

(C) (3, 2) (D) (– 2, –3)

Q.16) If two vertices of a parallelogram are (3, 2) and (–1, 0) and the diagonals intersect at (2, –5), then the other two vertex are :

(A) (1,– 10), (5, –12) (B) (1,– 12), (5, –10)

(C) (2, – 10) (D) (1, – 10), (2, – 12)

Q.17) The circumcentre of the triangle formed by the lines xy + 2x + 2y + 4 = 0 and x + y + 2 = 0 is :

(A) (– 1, – 2) (B) (– 1, – 1)

(C) (– 2, – 2) (D) (0, 0)

Q.18) For the triangle whose sides are along the lines x = 0 , y = 0 and $\frac{x}{6}+\frac{y}{8}=1$, the incentre is :

(A) (3, 4) (B) (2, 2)

(C) (2, 3) (D) (3, 2)

Q.19) The points D(2, 1), E(–1, –2) and F(3, 3) are the mid points of sides BC, CA and AB respectively of a ΔABC. The vertices A, B and C are:

(A) (0, 0), (6, 6), (– 2, – 4)

(B) (0, 1), (6, 6), (2, 4)

(C) (1, 0), (3, 3), (– 2, – 4)

(D) None of these

Q.20) A line is drawn through the points (3, 4) and (5, 6). If the line is extended to a point whose ordinate is – 1, then the abscissa of that point is:

(A) 0 (B) – 2

(C) 1 (D) 2

Q.21) If α,β,γ are the real roots of the equation $x^3 - 3px^2 - 1 = 0$, then the centroid of the triangle with vertices $\left(\alpha\frac{1}{\alpha}\right),\left(\beta\frac{1}{\beta}\right)$ and $\left(\gamma\frac{1}{\gamma}\right)$ is at the point :

(A) (p, q) (B) (p/3, q/3)

(C) (p + q, p – q) (D) (3p, 3q)

Q.22) The point A divides the join of the points (–5, 1) and (3, 5) in the ratio k : 1 and co-ordinates of points B and C are (1, 5) and (7, – 2) respectively. If the area of ΔABC be 2 units, then k equals:

(A) 7, 9 (B) 6, 7

(C) $7,\frac{31}{9}$ (D) $9,\frac{31}{9}$

Q.23) An equilateral triangle whose circumcentre is (–2, 5), one side is on y-axis, then length of side of the triangle is :

(A) 6 (B) $2\sqrt{3}$

(C) $4\sqrt{3}$ (D) 4

Q.24) Point P divides the line segment joining A(– 5, 1) and B(3, 5) internally in the ratio λ : 1. If Q = (1, 5), R = (7, – 2) and area of ΔPQR = 2, then λ equals :

(A) 23 (B) $\frac{29}{5}$

(C) $\frac{31}{9}$ (D) None of these

Q.25) The area of an equilateral triangle whose two vertices are (1, 0) and (3, 0) and third vertex lying in the first quadrant is :

(A) $\frac{\sqrt{3}}{4}$ (B) $\frac{\sqrt{3}}{2}$

(C) $\sqrt{3}$ (D) None of these

Q.26) ABC is an isosceles triangle. If the co-ordinates of the base are B(1, 3) and C(–2, 7), the co-ordinates of vertex A is

(A) $\left(\frac{-1}{2},5\right)$ (B) (1, 6)

(C) $\left(\frac{5}{6},6\right)$ (D) None of these

Q.27) A rectangle has two opposite vertices at the points (1, 2) and (5, 5). If the other vertices lie on the line x = 3, the co-ordinates of the vertex nearer the axis of x are:

(A) 3, 1 (B) (3, 2)

(C) (3, 4) (D) (3, 6)

Q.28) An equilateral triangle whose orthocenter is (3, – 2), one side is on x-axis then vertex of triangle which is not on x-axis is :

(A) (3, – 6) (B) (1, – 2)

(C) (9, – 2) (D) (3, – 3)

Q.29) If the vertices of a triangle have integral co-ordinates, then the triangle is :

(A) Isosceles

(B) Never equilateral

(C) Equilateral

(D) None of these

Q.30) The circumcentre of the triangle formed by the points (a cos α , a sin α), (a cos β , sin β), (a cos γ , sin γ) is

(A) (0, 0)

(B) $\left[\left(\frac{a}{3}\right)(\cos\alpha+\cos\beta+\cos\gamma),\right.$

$\left.\left(\frac{a}{3}\right)(\sin\alpha+\sin\beta+\sin\gamma)\right]$

(C) (a, 0)

(D) None of these

Answer Sheet

Q.1	A	Q.11	C	Q.21	A
Q.2	B	Q.12	C	Q.22	C
Q.3	A	Q.13	C	Q.23	C
Q.4	C	Q.14	C	Q.24	C
Q.5	B	Q.15	C	Q.25	C
Q.6	B	Q.16	B	Q.26	C
Q.7	A	Q.17	B	Q.27	A
Q.8	A	Q.18	C	Q.28	A
Q.9	D	Q.19	A	Q.29	B
Q.10	B	Q.20	B	Q.30	A