

CH – 7 COORDINATE GEOMETRY

Practice Sheet 1

- Q1.** Find the distance between the points A $(a + \sqrt{3}, 2a)$ and B $(2a + \sqrt{3}, 5a)$.
- Q2.** Find the distance between the points A $(2, \frac{5}{2})$ and B $(3, \frac{7}{2})$.
- Q3.** Find the distance between the points A $(\frac{2\sqrt{3}}{3}, \frac{5\sqrt{2}}{2})$ and $(\frac{-2\sqrt{3}}{3}, \frac{5\sqrt{2}}{2})$.
- Q4.** Find the distance between the points A $(a + \sqrt{3}, 3b + 2\sqrt{3})$; B $(4a + \sqrt{3}, 6b + 2\sqrt{3})$.
- Q5.** Find the distance between the points A $(a + b, a - b)$ and B $(a - b, -a, -b)$.
- Q6.** Find the distance between the points A $(\frac{a}{\sqrt{3}}, \frac{2b}{\sqrt{3}})$ and B $(\frac{3a}{\sqrt{3}}, -\frac{4b}{\sqrt{3}})$.
- Q7.** Show that the points A(3, 0), B(6, 4) and C(-1, 3) are the vertices of a right angled triangle. Also prove that these vertices of an isosceles triangle.
- Q8.** Prove that the points A(7,10), B(-2, 5) and C(3,-4) are the vertices of an isosceles right triangles.
- Q9.** Show that the points A(-3, 2), B(-5, -5), C(2, -3) and D(4, 4) are the vertices of a rhombus, find the area of the rhombus.
- Q10.** Prove that the points $(2a, 4a)$, $(2a, 6a)$ and $(2a + \sqrt{3}a)$ are the vertices of an equilateral triangle.
- Q11.** If Q(0,1) is equidistant from P(5,-3) and R(x, 6) find the values of x. Also find the distances QR and PR.
- Q12.** Find the values of y for which the distance between the points P(2,-3) and Q(10, Y) is 10 units.
- Q13.** Find the distance between the points (0,0) and (36, 15).
- Q14.** Determine if the points (1,5), (2,3) and (-2, -11) are collinear.
- Q15.** Find the relation between x and y such that point (x, y) is equidistant from the points (7, 1) and (3, 5).
- Q16.** Find the point on y - axis which is equidistant from (-5, -2) and (3, 2).
- Q17.** What a point on the x - axis equidistant from (7, 6) and (-3, 4)
- Q18.** Find the distance between the point P(-3, 5) and the point Q on the x-axis whose abscissa is 9.
- Q19.** If the points (2, 1) and (1, -2) are equidistant from the point (p, q), show that $p + 3q = 0$.
- Q20.** Find a relation between x and y such that the point (x,y) is equidistant from the point (3,6) and (-3, 4).
- Q21.** Find the radius of a circle if its center of (-2, 3) and a point (3, 5) lies on its circumference.
- Q22.** Find a relation between x and y such that the point (x,y) is equidistant from the points (7,1) and (3, 5).
- Q23.** Two vertices of an isosceles triangle are (2, 0) and (2, 5). Find the third vertex if the length of the equal sides is 3.
- Q24.** Which point on y - axis is equidistant from (2, 3) and (4, 1) ?
- Q25.** Find the centre of the circle passing through (5, - 8), (2, - 9) and (2, 1).
- Q26.** Find the value of k, if the point P(0, 2) is equidistant from (3, k) and (k, 5).

Practice sheet 2

- Q27.** Find the coordinates of the point which divides the join of $(-1, 7)$ and $(4, -3)$ in the ratio $2 : 3$.
- Q28.** Find the ratio in which the line segment joining the points $(-3, 10)$ and $(6, 8)$ is divided by $(-1, 6)$.
- Q29.** If $(1, 2)$, $(4, y)$, $(x, 6)$ and $(3, 5)$ are the vertices of a parallelogram taken in order, find x and y .
- Q30.** Find the coordinates of a point A , where AB is the diameter of a circle whose center is $(2, -3)$ and B is $(1, 4)$.
- Q31.** If A and B are $(-2, -2)$ and $(2, -4)$, respectively, find the coordinates of P such that $AP = \frac{3}{7} AB$ and P lies on the line segment AB .
- Q32.** Show that the points $A(5, 6)$, $B(1, 5)$, $C(2, 1)$ and $D(6, 2)$ are the vertices of a square.
- Q33.** Determine the ratio in which the point $P(m, 6)$ divides the join of $A(-4, 3)$ and $B(2, 8)$. Also find the value of m .
- Q34.** $A(3, 2)$ and $B(-2, 1)$ are two vertices of a triangle ABC , whose centroid G has coordinates $(\frac{5}{3}, -\frac{1}{3})$. Find coordinates of the 3rd vertex
- Q35.** The coordinates of the mid-point of the line joining the points $(3p, 4)$ and $(-2, 2q)$ are $(5, p)$. Find the values of p and q .
- Q36.** Two vertices of a triangle are $(1, 2)$ and $(3, 5)$. If the centroid of the triangle is at the origin, find the coordinates of the third vertex.
- Q37.** The coordinates of the mid-point of the line joining the points $(2p + 2, 3)$ and $(4, 2q + 1)$ are $(2p, 2q)$. Find the values of p and q .
- Q38.** Find the value of m for which the points with coordinates $(3, 5)$, $(m, 6)$ and $(\frac{1}{2}, \frac{15}{2})$ are collinear.
- Q39.** Prove that the points $A(-4, -1)$, $B(-2, -4)$, $C(4, 0)$ and $D(2, 3)$ are the vertices of a rectangle.
- Q40.** Find the coordinates of the points which divide the line-segment joining the points $(-2, 0)$ and $(0, 8)$ in four equal parts.
- Q41.** If the points $(10, 5)$, $(8, 4)$ and $(6, 6)$ are the mid-points of the sides of a triangle, find its vertices.
- Q42.** In what ratio is the line segment joining the points $(-2, -3)$ and $(3, 7)$ divided by the y -axis? Also, find the coordinates of the point of division.
- Q43.** If $A(5, -1)$, $B(-3, -2)$ and $C(-1, 8)$ are the vertices of a triangle ABC , find the length of median through A and coordinates of the centroid.
- Q44.** Three consecutive vertices of a parallelogram are $(-2, -1)$, $(1, 0)$ and $(4, 3)$. Find the coordinates of the vertex.
- Q45.** If the point $C(-1, 2)$ divides the line segment AB in the ratio $3 : 4$, where the coordinates of A are $(2, 5)$, find the coordinates of B .
- Q46.** Find the ratio in which $C(p, 1)$ divides the join of $A(-4, 4)$ and $B(6, -1)$ and hence find the value of p .
- Q47.** Show that the points $(7, 10)$, $(-2, 5)$ and $(3, -4)$ are the vertices of an isosceles right triangle.
- Q48.** In what ratio does the line $x - y - 2 = 0$ divide the line segment joining $(3, -1)$ and $(8, 9)$?