CO-ORDINATE GEOMETRY

CLASS X (2025-26) *SUJITHKUMAR KP*

1. Find the point on x-axis which is equidistant from (–2, 5) and (2, –3)
   (A) $(2,0)$ (B) $(-2,0)$ (C) $(1,0)$ (D) $(0,-2)$
2. Coordinates of the vertices of a triangle are $A\ (-2,2), B\ (0,4)\ and\ C\ (4,-2)$ then the midpoint of the side BC is___.
   (A) $(1,2)$ (B) $(2,1)$ (C) $(1,0)$ (D) $(-1,3)$
3. Find a point on the *y*-axis which is equidistant from the points A(6, 5) and B(– 4, 3)
   (A) $(0,\ 9)$ (B) $(0,-9)$ (C) $(9,\ 9)$ (D) $(9,0)$
4. Find the distance of the point $(1,2)$ from the midpoint of the line segment joining the points $(6,8)$ and $(2,\ 4)$.
   (A) 6 (B) 4 (C) 2 (D) 5
5. Find the distance between the points $\left(-\frac{8}{5}, 2\right)\ and\ \left(\frac{2}{5}, 2\right)$.
   (A) 2 (B) 4 (C) 5 (D) 8
6. Find the coordinates of the point A , where AB is the diameter of a circle whose centre is $(2,-3)$ and B is $(1,4)$.
   (A) $(7,\ 3)$ (B) $(3, 10)$ (C) $(-3, 10)$ (D) $(3,-10)$
7. What point on the x-axis is equidistant from $(7,6)$ and $(-3, 4)$
   (A) $(-3,\ 0)$ (B) $(-4,\ 0)$ (C) $(3,\ 0)$ (D) $(0, 3)$
8. If the mid- point of the line segment joining the points $P\ (6, b-2)$ and $Q\ (-2,4)$ is $(2,-3)$, find the value of b.
   (A) -8 (B) 8 (C) -2 (D) 5
9. Find the ratio in which the line segment joining $A(1,-5)$ and $B\ (-4,5)$ is divided by the $x-\ axis$.
   (A) 1:2 (B) 1:1 (C) 2:1 (D) 3:1
10. If the points $A\ (4,3)$ and B $(x,\ 5)$ are on the circle with the centre $O(2,3)$, find the value of x
    (A) 2 (B) 4 (C) -5 (D) 5
11. AOBC is a rectangle whose three vertices are A (0, 3), O (0, 0) and B (5, 0). The length of its diagonal is ___
    (A) 8 (B) $\sqrt{34}$ (C) 5 (D) 34
12. Given a Δ ABC with vertices $A(2,2), B(0,2)\ \ and\ C(2,-4)$. Find the length of the median from the vertex A.
    A) $\sqrt{37}$ B) $\sqrt{13}$ C) $\sqrt{10}$ D) $\sqrt{12}$
13. The line segment AB joining the points $A\ (3,-4)\ and\ B\ (1,2)$ is trisected at the point $P\ (p,-2)\ and\ \ Q\ \left(\frac{5}{3}, q\right)$. Find the value of p .
    A) $p=\ 2$ B) $p=\ 3$ C) $p=\frac{7}{3}$ D) $p=\frac{5}{3}$
14. If P(1, 2), Q(4, 6), R(5, 7) and S(a, b) are the vertices of a parallelogram PQRS, then ____
    A) a = 3, b = 4 B) a = 2, b = 4 C) a = 2, b = 3 D) a = 3, b = 3
15. The point P which divides the line segment joining the points A(2, –5) and B(5, 2) in the ratio 2 : 3 lies in the quadrant____
    A) I B) II C) III D) IV

16. The area (in square units) of the triangle formed by the points A(a, 0), O(0, 0) and B(0, b) is_____

A) ab B) $\frac{1}{2}ab$ C) $\frac{1}{2}\ a^2b^2$ D) $\frac{1}{2}\ b^2$

17. The distance of the point (4, 6) from y -axis is _____

A) 6 B) 4 C) 2 D) 10

18. If the distance of the point $(4,\ a)$ from x-axis is half its distance from y-axis, then $a\ =$ _____

A) 4 units B) 8 units C) 2 units D) 6 units

19. If the distance between the points (8, p) and (4, 3) is 5 units, then value of p is_____

A) 6 B) 0 C) 6 and 0 D) 5

20. If the origin is the mid-point of the line segment joined by the points (2, 3) and (x, y), then the value of (x, y) is_____

A) (2, 3) B) (– 2, 3) C) (– 2, – 3) D) (2, – 3)

21. If four vertices of a parallelogram taken in order are $(-\ 3, -\ 1), (a, b), (3, 3)\ and\ (4, 3)$, then a : b =_____

A) 1 : 4 B) 4 : 1 C) 1 : 2 D) 2 : 1

22. What is the distance between the points A(c, 0) and B(0, –c)?

A) $\sqrt{2c}$ B) $\sqrt{2}\ c$ C) $\sqrt{2}$ D) c

23. If A and B are the points (–6, 7) and (–1, –5) respectively, then find the distance 3AB.

A) 26 B) 13 C) 25 D) 39

24. Find the point on y-axis which is equidistant from the points (5, – 2) and (–3, 2).

A) -2 B) 2 C) 3 D) 16

25. Find the ratio in which the line segment joining the points (6, 4) and (1, –7) is divided by *x*-axis.

A) 4: 5 B) 7: 4 C) 4: 7 D) 1: 7

26. The coordinates of the point which divides the line segment joining the points (4, – 3) and (8, 5) in the ratio 3 : 1 internally is _____.

A) $(7, 3\ )$ B) $(-7, 3\ )$ C) $(7, -3\ )$ D) $(-7, -3\ )$

27. If the points $A\ (4, 3)$ and B $(x,\ 5)$ are on the circle with the centre $O(2, 3)$, find the value of x

A) 2 B) 4 C) -5 D) 5

28. Find the value of *k* if P (4, –2) is the mid-point of the line segment joining the points A (5*k*, 3) and B (–*k*, –7).

A) – 2 (B) 2 (C) 3 (D) 1

29. Find the point on *y*-axis which is equidistant from the points (5, – 2) and (–3, 2).

30. Distance of the point $(2, -4)$ from the origin is _____.

A) $2\sqrt{5}$ B) 4 C) $\sqrt{2}$ D) $2\sqrt{2}$

31. If the opposite angular points of a square are (4,3) and (-2 ,-3) then the side of the square is___

A) 6 B) $6\sqrt{2}$ C) $\sqrt{6}$ D) none

32. End points of a diameter of a circle are (2, 3) and (5, 6) . Its centre is ___

A) (7, 9) B) (2,1) C) $\left(\frac{7}{2}, \frac{9}{2}\right)$ D) (-3,-3)

33. If the points (-1,-1); (0, 0) and (2, k) are collinear then the value of k is …….

A) -3 B) 3 C) 2 D) none

34. The ratio in which the x-axis divides the line joining (4, 8) and (3,-5) is ……..

(A) 5:7 (B) 8:3 (C) 8:5 (D) none

35. What point on the *x*-axis is equidistant from (7, 6) and (– 3, 4)?

A) (3, 0). B) (8, 0) C) (4,0) D) (–3, 0)

36. If the points A (4, 3) and B (x, 5) are on the circle with the centre O (2, 3), find the value of x.
(A) 5 (B) 3 (C) 2 (D) 4

37. The centre of a circle is (2x – 1, 7) and it passes through the point (– 3, –1). If the diameter of the circle is 20 units, then find the value of x.
A) – 4, 2 (B) – 4, 3 (C) 4, – 2 (D) – 4, –2
ANS: a) – 4, 2

38. If the mid-point of the line segment joining the points P (6, b – 2) and Q (– 2, 4) is (2, – 3), find the value of b.
(A)– 8 (B) 8 (C)– 6 (D) – 12

39. If P (1, 2), Q (4, 6), R (5, 7) and S (a, b) are the vertices of a parallelogram PQRS then find the value of a and b.
A) a = 2 and b = – 3 (B) a = 2 and b = 3 (C) a = – 2 and b = 3 d) a = – 2 and b = – 3

40. If P $\left(\frac{a}{3}, 4\right)$ is the mid-point of the line segment joining the points Q (– 6, 5) and R (–2, 3), then the value of a is _____
(A)–4 (B) –12 (C)12 (D) –6

41. The coordinates of the point which divides the line segment joining the points (4, – 3) and (8, 5) in the ratio 3 : 1 internally is _____.
A) $(7, 3)$ B) $(-7, 3)$ C) $(7, -3)$ D) $(-7, -3)$

42. Find the ratio in which line formed by joining (–1, 1) and (5, 7) is divided by the line $x + y = 4$.
ANS: 1 : 2.

43. Find the ratio in which the point $(2, 1)$ divides the join of the points $(1, -2)$ and $(4, 7)$
A) $1:4$ B) $2:3$ C) $1:2$ D) $2:1$

44. 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.
ANS: (–5, –2).

45. The line segment joining the points A (2, 1) and B (5, – 8) is trisected at the points P and Q such that P is nearer to A. If P also lies on the line given by $2x – y + k = 0$, find the value of k. ANS: k = – 8

46. If C is a point lying on the line segment AB joining A(1, 1) and B(2, – 3) such that 3AC = CB, then find the coordinates of C. ANS: $\left(\frac{5}{4}, 0\right)$

47. 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.
ANS: p = 4 and q = 2

48. Find the ratio in which the line segment joining (2, – 3) and (5, 6) is divided by x-axis.
ANS: 2 : 1 internally

49. Point A is on the y-axis at a distance of 4 units from the origin. If coordinates of point B are (–3, 0) then find the length of AB. ANS : 5 units

50. Find the point on x-axis which is equidistant from the points (2, – 5) and (–2, 9). *ANS: a = –7*

51. Find the points on the x-axis which are at a distance of $2\sqrt{5}$ from the point (7, –4). How many such points are there? ANS: (9, 0) and (5, 0).

52. The centre of a circle is $(2a, a - 7)$. Find the values of a if the circle passes through the point (11, –9) and has diameter $10\sqrt{2}$ units. *ANS:* $a = 5, 3$

53. Find the perimeter of the triangle with vertices (0, 4), (0, 0) and (3, 0). ANS: 12 units.

54. Find the ratio in which the y-axis divides the line segment joining the points (5, – 6) and (–1, –4).
ANS: 5 : 1.

55. Find the fourth vertex of a rectangle whose three vertices taken in order are (4, 1), (7, 4) and (13, –2).
ANS: D(10, –5).

56. If origin is the mid-point of the line segment joined by the points (2, 3) and (x, y) then find the value of (x, y). *ANS:* $x = -2$ $y = -3$.

57. If (–2, –1); $(a, 0)$; $(4, b)$ and (1, 2) are the vertices of a parallelogram, find the values of a and b.
ANS: $a = 1$; $b = 3$

58. In what ratio does the line $x - y - 2 = 0$ divide the line segment joining (3, –1) and (8, 9)?
ANS: 2 : 3.

59. If the line $3x + 4y = 24$ cuts the x-axis at A and y-axis at B, then find the area of AOB.
ANS: 24 sq. units

60. Find the ratio in which the line segment joining the points (6, 4) and (1, –7) is divided by x-axis
ANS: 4 : 7.

61. Determine k, so that the following points are collinear: (2, 3), $(k, 6)$ and (3, 2).
ANS: $k = -1$

62. Point P divides the line segment joining the points A (2 , –5) and B (5, 2) in the ratio 2 : 3. Name the quadrant in which P lies.

63. The coordinates of one end point of a diameter of a circle are (4, –1) and the coordinates of the centre are (1, –3). Find the coordinates of the other end of the diameter.

64. The centre of a circle is (2a +3, 2a -1). Find the value of a if the circle passes through the point (11, 9) and has a diameter of length 20 units.

65 The end points of diameter of circle are (2, 4) and (–3, –1). The radius of the circle is _____.
(A) $\frac{5}{2}$ (B) $\frac{5}{\sqrt{2}}$ (C) $\frac{10}{\sqrt{2}}$ (D) $5\sqrt{2}$

66 Three vertices of a parallelogram ABCD are A(1, 4), B(–2, 3) and C(5, 8). The abscissa of the fourth vertex D is ____
(A) 9 (B) 8 (C) 6 (D) 3

67 Points $A\ (-1, y)\ and\ B(5, 7)$ lie on a circle with centre $O\ (2, -3y)$. The values of y are _____
(A) $-1, 7$ (B) $1, -7$ (C) $2, 7$ (D) $-7,\ 7$

68 If (a, b) is the midpoint of the line segment joining the points $A\ (10, -6)\ and\ B\ (k, 4)$ and $a - 2b = 18$, the values of k is _____
(A) -22 (B) 10 (C) 11 (D) 22

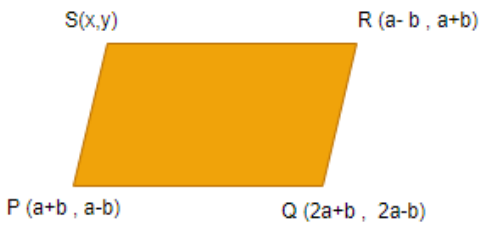
69 The point P which divides the line segment joining the points $A(2, -5)$ and $B\ (5, 2)$ in the ratio 2 : 3 lies in the quadrant____
(A) I (B) II (C) III (D) IV

70 If the distance of the point $(4, a)$ from x-axis is half its distance from $y - axis$, then $a =$ ___
(A) $\frac{1}{2}$ (B) 4 (C) 8 (D) 2

71 The coordinates of one end point of a diameter of a circle are (4, –1) and the coordinates of the centre are (1, –3). Find the coordinates of the other end of the diameter.

(A) $(-2,-5)$ (B) $(2,-5)$ (C) $(-2,5)$ (D) $(2,5)$

72 If $P(a+b,a-b), Q(2a+b,2a-b), R(a-b,a+b)$ and $S(x,y)$ are the vertices of a parallelogram PQRS, then find the fourth vertex $S(x,y)$.



(A) (b,b) (B) $(b,-b)$
(C) $(-b,b)$ (D) (a,b)

73 C is the mid -point of PQ , P is $(4,x)$, C is $(y,-1)$ and Q is $(-2,4)$ then x *and* y respectively are ____.

(A) $x=-6,\ y=1$ (B) $x=-6,\ y=2$ (C) $x=6,\ y=-1$ (D) $x=6,\ y=-2$

74 If the distance between the points (4, p) and (1, 0) is 5 units, then the value of p is

(A) 4 only (B) ± 4 (C) –4 only (D) 0

75 The perimeter of a triangle with vertices (0, 4), (0, 0) and (3, 0) is _____

(A) 5 (B) 12 (C) 11 (D) $7+\sqrt{5}$

76 If $P(1,2), Q(4,6), R(5,7)$ *and* $S(a,b)$ are the 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

77 If P $\left(\frac{a}{3},4\right)$ is the mid-point of the line segment joining the points Q (– 6, 5) and R (–2, 3), then the value of a is _____

(A) –4 (B) –12 (C) 12 (D) –6

78 A straight line is drawn joining the points (3, 4) and (5, 6). If the line is extended, the ordinate of the point on the line, whose abscissa is –1 is _____.

79 Find the distance between the points, $\left(\frac{-8}{5},2\right)$ and $\left(\frac{2}{5},2\right)$.

80 If A and B are the points (–6, 7) and (–1, –5) respectively then find the distance 2AB.

81 If the mid-point of the line segment joining the points P(6, b – 2) and Q(– 2, 4) is (2, – 3), find the value of *b*.

82 If A(1, 2), B(4, 3) and C(6, 6) are the three vertices of a parallelogram ABCD, find the coordinates of the fourth vertex D.

83 The three vertices of a parallelogram ABCD are A (3, –4), B (–1, –3) and C (–6, 2). Find the coordinates of vertex D.

84 Find the coordinates of the centroid of a triangle whose vertices are (0, 6), (8, 12) and (8, 0).

85 Check whether (5, – 2), (6, 4) and (7, – 2) are the vertices of an isosceles triangle

86 Find the coordinates of the point which divides the line segment joining the points (4, – 3) and (8, 5) in the ratio 3 : 1 internally

87 Two vertices of a triangle are (3, –5) and (–7, 4). If its centroid is (2, – 1), find the third vertex.

88 The coordinates of one end point of a diameter of a circle are (4, –1) and the coordinates of the centre are (1, –3). Find the coordinates of the other end of the diameter.

89 Point P divides the line segment joining the points A(2, –5) and B(5, 2) in the ratio 2 : 3. Name the quadrant in which P lies.

90 In figure, P(5, –3) and Q(3, y) are the points of trisection of the line segment joining A(7, – 2) and B(1, – 5). Find y.

91 If P $\left(\frac{a}{3},4\right)$ is the mid-point of the line segment joining the points Q (– 6, 5) and R (–2, 3), then the value of a is _____

92 Find the distance between the points P(–6, 7) and Q(–1, –5).

93 If the distances of P(x, y) from the points A(3, 6) and B(–3, 4) are equal prove that $3x + y = 5$

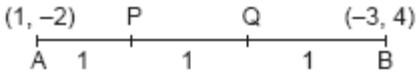
94 Find the point on y-axis which is equidistant from the points (5, – 2) and (–3, 2).

95 What point on the x-axis is equidistant from (7, 6) and (– 3, 4)?

96 If the points A(4, 3) and B(x, 5) are on the circle with the centre O(2, 3), find the value of x.

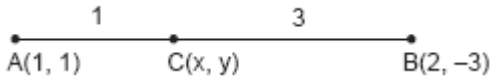
97 The centre of a circle is (2 α – 1, 7) and it passes through the point (– 3, –1). If the diameter of the circle is 20 units, then find the value of α .

98 Find the coordinates of the point of trisection of the line segment joining (1, –2) and (–3, 4).



99 Find the ratio in which the point (2, y) divides the line segment joining the points A (–2, 2) and B (3, 7). Also find the value of y.

100 If C is a point lying on the line segment AB joining A(1, 1) and B(2, – 3) such that 3AC = CB, then find the coordinates of C.



101 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.

102 Find the ratio in which the line segment joining (2, – 3) and (5, 6) is divided by x-axis.

103 If two vertices of a parallelogram are (3, 2), (– 1, 0) and the diagonals cut at (2, – 5), find the other vertices of the parallelogram.

104 Find the coordinates of a point P which divides the line segment joining the points A(– 2, 3) and B(4, 7) internally in the ratio $\frac{4}{7}$.

105 If x is a positive integer such that the distance between the points P(x, 2) and Q(3, –6) is 10 units, then x = ?

106 Point A is on the y-axis at a distance of 4 units from the origin. If coordinates of point B are (–3, 0) then find the length of AB.

107 Find the point on x-axis which is equidistant from the points (2, – 5) and (–2, 9).

108 The centre of a circle is (2a, a – 7). Find the values of a if the circle passes through the point (11, –9) and has diameter $10\sqrt{2}$ units.

109 Find the perimeter of the triangle with vertices (0, 4), (0, 0) and (3, 0).

110 Find the ratio in which the y-axis divides the line segment joining the points (5, – 6) and (–1, –4).

111 If $\left(\frac{a}{2},\ 4\right)$, is the mid-point of the line segment joining the points A(–6, 5) and B(–2, 3) then find the value of a.

112 Find the fourth vertex of a rectangle whose three vertices taken in order are (4, 1), (7, 4) and (13, –2).

113 If origin is the mid-point of the line segment joined by the points (2, 3) and (x, y) then find the value of (x, y).

114 If (–2, –1); (a, 0); (4, b) and (1, 2) are the vertices of a parallelogram, find the values of a and b.

115 In what ratio does the line $x – y – 2 = 0$ divide the line segment joining (3, –1) and (8, 9)?

116 Find the ratio in which the point (x, 2) divides the line segment joining the points (–3, –4) and (3, 5). Also

find the value of x.

117 Find the ratio in which the line segment joining the points (6, 4) and (1, –7) is divided by x-axis.

118 Find the coordinates of a point which divides the join of (1, 3) and (2, – 1) in the ratio 3 : 2 internally

119 Find the lengths of the medians of Δ ABC having vertices at A(5, 1), B(1, 5) and C(– 3, – 1).

120 Show that the points A (3, 5), B (6, 0), C (1, – 3) and D (–2, 2) are the vertices of a square ABCD