CO-ORDINATE GEOMETRY

CLASS X (BASIC & STANDAR(D)

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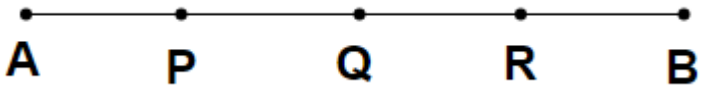
1. In the given figure below, points P, Q, R divides the line segment AB in four equal parts. (CBSE 2025)



The point Q divides PB in the ratio

(A) 1: 3 (B) 2: 3 (C) 1: 2 (D) 1: 1

2. If AD is a median of $\Delta\, ABC$ with vertices A $(5,-6), B\ (6,4) and\ C(0,0)$. Length AD = _____

(A) $\sqrt{68}$ (B) $2\sqrt{15}$ (C) $\sqrt{101}$ (D) 10 (CBSE 2024)

3. If the distance between the points $(3,-5) and\ (x,-5)$ is 15 units then the values of $x\ are$:

(A) $12,-18$ (B) $-12,18$ (C) $18,5$ (D) $-9,-12$ (CBSE 2024)

4. The centre of a circle is at (2, 0) If one end of a diameter is at (6, 0) , then find the other end.

(A) (0, 0) (B) (4, 0) (C) $(-2,0)$ (D) $(-6,0)$ (CBSE 2024)

5. The point P divides the line segment joining the points $A(4,-5) and\ B(1,2)$ in the ratio 5: 2, then coordinates of the point P are_____

(A) $\left(\frac{5}{2},-\frac{3}{2}\right)$ (B)$\left(\frac{11}{7},0\right)$ (C) $\left(\frac{13}{7},0\right)$ (D) $\left(0,\frac{13}{7}\right)$ (CBSE 2024)

6. 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)

7. 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

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

(A) 2 (B) 4 (C) 10 (D) 5

9. 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) $(3,-10)$

10. What point on the x-axis is equidistant from $(7,6)$ and $(-3,4)$

(A) $(-3,\ 0)$ (B) $(-4,\ 0)$ (C) $(3,\ 0)$ (D) $(0,3)$

11. 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

12. 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

13. 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

14. 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

15. 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) $\sqrt{12}$
16. 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) $p = \frac{5}{3}$
17. 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
18. 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
19. 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) $\frac{1}{2}\ b^2$
20. The distance of the point (4, 6) from y -axis is _____
(A) 6 (B) 4 (C) 2 (D) 10
21. 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
22. 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
23. 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)
24. 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
25. 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
26. 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
27. 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
28. 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
29. 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) $(-7,-3)$
30. 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
31. 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

32. Find the point on *y*-axis which is equidistant from the points (5, – 2) and (–3, 2).
33. Distance of the point $(2,-4)$ from the origin is _____.
    (A) $2\sqrt{5}$ (B) 4 (C) $\sqrt{2}$ (D) $2\sqrt{2}$
34. 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
35. 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)
36. 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
37. 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
38. 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)
39. 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
40. 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
41. 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
42. 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 $b = -3$
43. 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
44. 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) $(-7,-3)$
45. 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.
46. 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
47. 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).
48. 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: $k = -8$
49. 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: $\left(\frac{5}{4}, 0\right)$

50. 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 $q = 2$

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

ANS: 2 : 1 internally

52. 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

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

54. 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).

55. 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: $a = 5, 3$

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

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

ANS: 5 : 1.

58. 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).

59. 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: $x = -2$ $y = -3$.

60. If $(-2, -1)$; $(a, 0)$; $(4, (B)$ and $(1, 2)$ are the vertices of a parallelogram, find the values of a and b.

ANS: $a = 1$; $b = 3$

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

ANS: 2 : 3.

62. 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

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

ANS: 4 : 7.

64. Determine k, so that the following points are collinear: (2, 3), $(k, 6)$ and (3, 2).

ANS: $k = -1$

65. 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.

66. 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.

67. 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.

68. The coordinates of the end points of the line segment AB are $A(-2, -2)$ and $B(2, -4)$ is the point on AB such that $BP = \frac{4}{7}AB$. Find the coordinates of point P. (CBSE 2025

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