Chapter 7: Coordinate Geometry

A. Distance Formula & Section Formula

Q1. Find the distance between the points $A(2, 3)$ and $B(4, 1)$.

Q2. If the distance between the points $(x, -1)$ and $(3, 2)$ is 5 units, find the value of x.

Q3. Find a point on the x-axis which is equidistant from $(2, -5)$ and $(-, 29)$.

Q4. Determine whether the points $(1, 5), (2, 3)$ and $(-, 2-11)$ are collinear.

Q5. Name the type of quadrilateral formed by the points $(4, 5), (7, 6), (4, 3)$ and $(1, 2)$.

Q6. Find the coordinates of the point which divides the line joining $(-, 17)$ and $(4, -3)$ in the ratio $2:3$.

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Q7. Find the ratio in which the y-axis divides the line segment joining $(5, -6)$ and $(-, 1-4)$.

Q8. If $(1, 2), (4, y), (x, 6)$ and $(3, 5)$ are the vertices of a parallelogram taken in order, find x and y.

Q9. Find the coordinates of point A, where AB is the diameter of a circle whose centre is $(2, -3)$ and B is $(1, 4)$.

Q10. Find the coordinates of the points of trisection of the line segment joining $(4, -1)$ and $(-, 2-3)$.

B. Midpoint & Centroid

Q11. Find the midpoint of the line segment joining $(7, 6)$ and $(-, 3 - 4)$.

Q12. The centroid of a triangle is $(1, 4)$. Two vertices are $(4, -3)$ and $(-, 97)$. Find the third vertex.

Q13. If $P\left(\frac{a}{3}, 4\right)$ is the midpoint of the line segment joining

$Q(-, 65)$ and $R(-, 23)$, find the value of a.

Q14. Find the length of the medians of a triangle whose vertices are $(0, -1), (2, 1)$ and $(0, 3)$.

C. Application / Case Study Based

Q15. Find the area of a rhombus whose vertices are

$(3, 0), (4, 5), (-, 14)$ and $(-, 2 - 1)$.

Q16. Find the relation between x and y if the point (x, y) is equidistant from $(3, 6)$ and $(-, 34)$.

Q17. If $A(-, 57), B(-, 4 - 5), C(-, 1 - 6)$ and $D(4, 5)$ are the vertices of a quadrilateral, find its area.

Q18. In what ratio does point P divide AB if

$AP = \frac{3}{7}AB$?

Q19. Prove that the points $(3, 0), (6, 4)$ and $(-, 13)$ form a right-angled isosceles triangle.

Q20. Find the coordinates of the centre of a circle passing through

$(6, -6), (3, -7)$ and $(3, 3)$.

Top 20 PYQs (2020–2024)

Q1. (2023)

Find the ratio in which the point

$P\left(\frac{3}{4}, \frac{5}{12}\right)$ divides the line segment joining

$A\left(\frac{1}{2}, \frac{3}{2}\right)$ and $B(2, -5)$.

Q2. (2020)

Find the distance of the point $P(x, y)$ from the origin.

Q3. (2022)

The mid-point of the line segment joining

$A(2, a4)$ and $B(-, 23b)$ is $(1, 2a+1)$.

Find the values of a and b.

Q4. (2024)

Find the coordinates of the point which is one-fourth of the way from

$A(-, 16)$ to $B(3, -4)$

Q5. (2021)

If the point $C(k, 0)$ divides the line segment joining

$A(2, -2)$ and $B(-, 74)$ in the ratio $1:2$, find the value of k.

Q6. (2023)

Points $A(-, 1y)$ and $B(5, 7)$ lie on a circle with centre

$O(2, -3y)$. Find the value of y.

Q7. (2020)
If the distance between points
$A(4, p)$ and $B(1, 0)$ is 5 units, find the value of p.

Q8. (2022)
Find the perimeter of a triangle whose vertices are
$(0, 4), (0, 0)$ and $(3, 0)$.

Q9. (2024)
If the points
$A(x, 2), B(-, 3 - 4)$ and $C(7, -5)$ are collinear, find the value of x.

Q10. (2021)
Find the ratio in which the line
$2x + y - 4 = 0$ divides the line segment joining
$A(2, -2)$ and $B(3, 7)$.

Q11. (2023 – Case Study)
Coordinates of a park are given.
Find the distance between two poles located at
$A(2, 3)$ and $B(6, 7)$.

Q12. (2020)
Find the area of a triangle whose vertices are
$(1, -1), (-, 46)$ and $(-, 3 - 5)$.

Q13. (2022)
In what ratio does the x-axis divide the line segment joining
$A(2, -3)$ and $B(5, 6)$?

Q14. (2024)
Find the fourth vertex D of the parallelogram $ABCD$ whose three vertices are $A(-,23)$,$B(6,7)$ and $C(8,3)$.

Q15. (2021)
Find the coordinates of the point P on the x-axis which is equidistant from $A(5,4)$ and $B(-,23)$.

Q16. (2023)
Find the length of the diameter of a circle whose center is $(2,-3)$ and which passes through $(7,9)$.

Q17. (2020)
Show that the points
$A(1,7),B(4,2),C(-,1-1)$ and $D(-,44)$
are the vertices of a square.

Q18. (2022)
If the point $P(9,a-2-b)$ divides the line segment joining
$A(3,a+1-3)$ and $B(8,a5)$ in the ratio $3:1$,
find the values of a and b.

Q19. (2024) Find the coordinates of the point Q on the line segment joining
$A(1,2)$ and $B(6,7)$ such that
$AQ = \frac{2}{5}AB$.

Q20. (2021) If the mid-point of the line segment joining
$(3,4)$ and $(k,7)$ is (x,y) and
$2x + 2y + 1 = 0$, find the value of k.