FREE NCERT SOLUTIONS

CLASS - 10

COORDINATE GEOMETRY

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EXERCISE 7.1 - Question No. 1

Find the distance between the following pairs of points :

$(i)\ (2, 3), (4, 1)$ $(ii)\ (5,\ 7), (1,\ 3)$ $(iii)\ (a,\ b), (a, b)$

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EXERCISE 7.1 - Question No. 2

Find the distance between the points (0, 0) and (36, 15).

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EXERCISE 7.1 - Question No. 3

Determine if the points $(1,\ 5),\ (2,\ 3)\ and\ (2,\ 11)$ are collinear.

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EXERCISE 7.1 - Question No. 4

Check whether $(5,\ -2), (6, 4) and (7, 2)$ are the vertices of an isosceles triangle.

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EXERCISE 7.1 - Question No. 5

In a classroom, 4 friends are seated at the points A. B. C and D as shown in Fig. 7.8. Champa and Chameli walk into the class and after observing for a few minutes Champa asks Chameli, Don't you think ABCD is a square? Chameli disagrees. Using distance formula, find which of them is correct.

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EXERCISE 7.1 - Question No. 6

Name the type of quadrilateral formed, if any, by the following points, and give reasons for your answer: `(i)\ (1,\ 2),\ (1,\ 0),\ (1,\ 2),\ (3,\ 0)(i i)\ (3,\ 5),(3,\ 1),(0,\ 3),(1,\ 4)(i i i)\ (4,\ 5),\ (7,\ 6),\

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EXERCISE 7.1 - Question No. 7

Find the point on the xaxis which is equidistant from

$(2,\ 5)\ and\ (2,\ 9)$

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EXERCISE 7.1 - Question No. 8

Find the values of y for which the distance between the points

$P(2,\ 3)\ and\ Q(10,\ y)$ is 10 units.

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EXERCISE 7.1 - Question No. 9

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.

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EXERCISE 7.1 - Question No. 10

Find a relation between x and y such that the point (x, y) is equidistant from the point $(3,\ 6)\ and\ (3,\ 4)$.

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EXERCISE 7.2 - Question No. 1

Find the coordinates of the point which divides the join of

$(1,\ 7)\ and\ (4,\ 3)$ in the ratio $2 : 3$.

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EXERCISE 7.2 - Question No. 2

Find the coordinates of the points of trisection of the line segment

joining $(4,\ 1)\ and\ (2,\ 3)$.

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EXERCISE 7.2 - Question No. 3

To conduct Sports Day activities, in your rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1m each. 100 flower pots have been placed at a distance of 1m from each other along AD, as shown in Figure

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EXERCISE 7.2 - Question No. 4

Find the ratio in which the line segment joining the points $(3,\ 10)$ *and* $(6,\ 8)$ *is divided by* $(1,\ 6)$.

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EXERCISE 7.2 - Question No. 5

Find the ratio in which [the line segment joining

$A(1,\ 5)\ and\ B(4,\ 5)$ is divided by the xaxis. Also find the

coordinates of the point of division.

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EXERCISE 7.2 - Question No. 6

If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram

taken in order, find x and y.

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EXERCISE 7.2 - Question No. 7

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

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EXERCISE 7.2 - Question No. 8

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.

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EXERCISE 7.2 - Question No. 9

Find the coordinates of the points which divide the line segment joining $A(2, 2)$ and $B(2, 8)$ into four equal parts.

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EXERCISE 7.2 - Question No. 10

Find the area of a rhombus if its vertices are

$(3, 0), (4, 5), (-1.4)$ *and* $(2, 1)$ taken in order.

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EXERCISE 7.3 - Question No. 1

Find the area of the triangle whose vertices are

(i) $(2, 3), (1, 0), (2, 4)$ $(ii)(5, 1), (3, 5), (5, 2)$

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EXERCISE 7.3 - Question No. 2

In each of the following find the value of k for which the points are collinear. $(i)\ (7,\ 2), (5,\ 1), (3,\ k) (ii)\ (8,\ 1), (k,\ 4),\ (2,\ 5)$

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EXERCISE 7.3 - Question No. 3

Find the area of the triangle formed by joining the midpoints of the sides of the triangle whose vertices are (0, 1), (2, 1) and (0, 3). Find the ratio of this area to the area of the given triangle.

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EXERCISE 7.3 - Question No. 4

Find the area of the quadrilateral whose vertices, taken in order, are $(-4, -2), (-3, -5), (3, -2) and (2, 3)$.

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EXERCISE 7.3 - Question No. 5

You have studied in Class IX, (Chapter 9. Example 3), that a median of a triangle divides it into two triangles of equal areas.

Verify this result for A ABC whose vertices are $A(4, 6), B(3, 2) and C(5, 2)$.

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EXERCISE 7.4 - Question No. 1

Determine the ratio in which the line 2x +y 4 = 0 divides the line segment joining the points A(2, 2) and B(3,7).

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EXERCISE 7.4 - Question No. 2

Find a relation between x and y if the points (x, y), (1, 2) and (7, 0) are collinear.

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EXERCISE 7.4 - Question No. 3

Find the centre of a circle passing through the points $(6,\ 6),\ (3,\ 7)\ and\ (3,\ 3)$.

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EXERCISE 7.4 - Question No. 4

The two opposite vertices of a square are $(1,\ 2)\ and\ (3,\ 2)$. Find the coordinates of the other two vertices.

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EXERCISE 7.4 - Question No. 5

The Class X students of a secondary school in Krishinagar have been allotted a rectangular plot of land for their gardening activity.

Sapling of Gulmohar are planted on the boundary at a distance of 1m from each other. There is a triangular grassy lawn in the plot as shown in the Figure. The students are to sow seeds of flowering plants on the remaining area of the plot. (i) Taking A as origin, find the coordinates of the vertices of the triangle. (ii) What will be the coordinates of the vertices of DPQR if C is the origin? Also calculate the areas of the triangles in these cases. What do you observe?

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EXERCISE 7.4 - Question No. 6

The vertices of a ΔABC are A(4,6), B(1,5) and C(7,2). A line is drawn to intersect sides AB and AC at D and E respectively, such that $\frac{AD}{AB} = \frac{AE}{AC} = \frac{1}{4}$ Calculate the area of the ΔADE and compare it with the area of ΔABC

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EXERCISE 7.4 - Question No. 7

Let A (4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC . (i) The median from A meets BC at D. Find the coordinates of the point D. (ii) Find the coordinates of the point P on AD such that AP : PD = 2 : 1 (iii) Find the coordinates of p

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EXERCISE 7.4 - Question No. 8

ABCD is a rectangle formed by the points

$A(1,\ 1),\ B(1,\ 4),\ C(5,\ 4)\ and\ D(5,\ 1)$. P, Q, R and S are the midpoints of AB, BC, CD and DA respectively. Is the quadrilateral PQRS a square? A rectangle? or a rhombus? Justify yo

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SOLVED EXAMPLES - Question No. 1

Do the points $(3,\ 2),\ (2,\ -3)\ and\ (2,\ 3)$ form a triangle? If so, name the type of triangle formed.

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SOLVED EXAMPLES - Question No. 2

Show that the points $(1,\ 7),\ (4,\ 2),\ (1,\ 1)\ and\ (\ 4,\ 4)$ are the vertices of a square.

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SOLVED EXAMPLES - Question No. 3

Figure shows the arrangement of desks in a classroom Ashima, Bharti and Camella are seated at A(3, 1), B(6, 4) and C(8, 6) respectively. Do you think they are seated in a line? Give reasons for your answer.

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SOLVED EXAMPLES - Question No. 4

Find a relation between x and y such that the point (x ,y) is equidistant from the points (7, 1) and (3, 5).

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SOLVED EXAMPLES - Question No. 5

Find a point on theyaxis which is equidistant from the points $A(6,\ 5)\ and\ B(4,\ 3)$.

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SOLVED EXAMPLES - Question No. 6

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.

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SOLVED EXAMPLES - Question No. 7

In what ratio does the point $(4,\ 6)$ divide the line segment joining the points $A(-6, 10)\ and\ B(3, 8)$?

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SOLVED EXAMPLES - Question No. 8

Find the coordinates of the points of trisection (i.e., points dividing in three equal parts) of the line segment joining the points $A(2, 2)$ and $B(7, 4)$.

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SOLVED EXAMPLES - Question No. 9

Find the ratio in which the yaxis divides the line segment joining the points $(5,\ 6)$ and $(1, 4)$.

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SOLVED EXAMPLES - Question No. 10

If the points A(6, 1), B(8, 2), C(9, 4) and D(p, 3) are the vertices of a parallelogram, taken in order, find the value of p.

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SOLVED EXAMPLES - Question No. 11

Find the area of a triangle whose vertices are $(1, \ -1), \ (-4, \ 6) \ and \ (-3, \ 5)$.

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SOLVED EXAMPLES - Question No. 12

Find the area of a triangle formed by the points $A(5, \ 2), \ B(4, \ 7) \ and \ C(7, 4)$.

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SOLVED EXAMPLES - Question No. 13

Find the area of the triangle formed by the points

$P(-1.5,\ 3),\ Q(6,\ -2)\ and\ R(3,\ 4)$.

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SOLVED EXAMPLES - Question No. 14

Find the value of k if the points $A(2,\ 3),\ B(4,\ k)\ and\ C(6,\ 3)$

are collinear.

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SOLVED EXAMPLES - Question No. 15

If $A(5,\ 7),\ B(-4,\ -5),\ C(-1,\ -6)$ *and* $D(4,\ 5)$ are the vertices of a quadrilateral, find the area of the quadrilateral ABCD.

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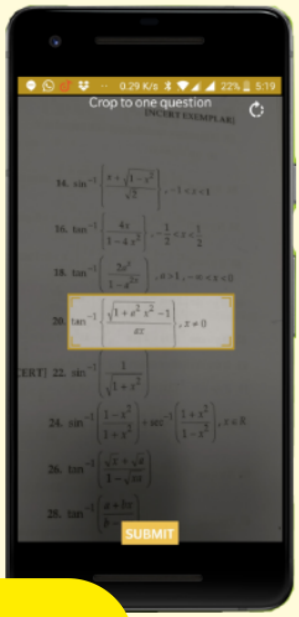

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