MATHS

BOOKS - SUPER COMPANION MADE EASY

COORDINATE GEOMETRY

Exercise 7 1

1. Find the distance between the following pairs of points :

(2,3), (4, 1)

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2. Find the distance between the following pairs of points :

(-5, 7), (-1, 3)

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3. Find the distance between the following pairs of points :

(a, b), (-a, -b)

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

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

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

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7. 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. Usi

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8. Name the type of quadrilateral formed, if any by the following points, and give reasons for your answer :

(-1, -2), (1,0), (-1, 2), (-3, 0)

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9. Name the type of quadrilateral formed, if any by the following points, and give reasons for your answer :

(-3, 5), (3, 1), (0, 3), (-1,-4)

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10. Name the type of quadrilateral formed, if any by the following points, and give reasons for your answer :

(4, 5),(7, 6), (4, 3), (1, 2)

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

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12. 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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13. 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 2

1. Find the corrdinates of the point which divides the join of (-1, 7) and (4, -3) into the ratio 2 : 3 internally.

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

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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 Figur

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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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5. Find the ratio in which the line segment joining A(1, -5) and B(-4, 5) is divided by the x-axis. Also find the coordinates of the point of division.

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

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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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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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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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10. Find the area of a rhombus if its vertices are (3, 0), (4, 5), (-1, 4) and (-2, -1) taken in order. [Hint : Area of a rhombus $= \frac{1}{2}$ (product of its diagonals)].

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Exercise 7 3

1. Find the area of the triangle whose vertices are :

(2, 3), (-1, 0), (2, -4)

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2. Find the area of the triangle whose vertices are :

(-5, -1), (3, -5), (5, 2).

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3. In each of the following find the value of 'k', for which the points are collinear.

(7, -2), (5, 1), (3, k)

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4. In each of the following find the value of 'k', for which the points are collinear.

(8, 1), (k, -4), (2, -5).

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5. Find the area of the triangle formed by joining the mid-points 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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6. 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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7. 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 ΔABC whose vertices are A(4, -6), B(3, -2) and C(5, 2).

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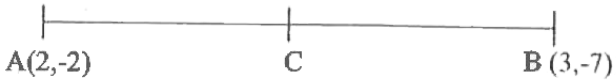
Exercise 7 4

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

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3. Find the centre of a circle passing through the point (6, -6), (3, -7) and (3,3).

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

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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 gr

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7. The vertices of a Δ ABC 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 Δ ADE and compare it with area of Δ ABC

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8. Let a(4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC.

The median from A meets BC at D. Find the coordinates of the point D.

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9. Let a(4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC.

Find the coordinates of the point P on AD such that AP : PD = 2 : 1.

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10. Let a(4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC.

Find the coordinates of points Q and R on medians BE and CF respectively such that BQ : QE = 2 : 1 and CR : RF = 2 : 1.

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11. Let a(4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC.

What do you observe ? [Note : The point which is common to all the three medians is called the centroid and this point divides each median in the ratio 2 : 1.]

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12. Let a(4, 2), B(6, 5) and C(1, 4) be the vertices of ΔABC.

If $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the

vertices of ΔABC, find the coordinates of the centroid of the triangle.

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