MATHS

BOOKS - NAND LAL PUBLICATION

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), Can you now find the distance between the two towns A and B discussed in Section 7.2.

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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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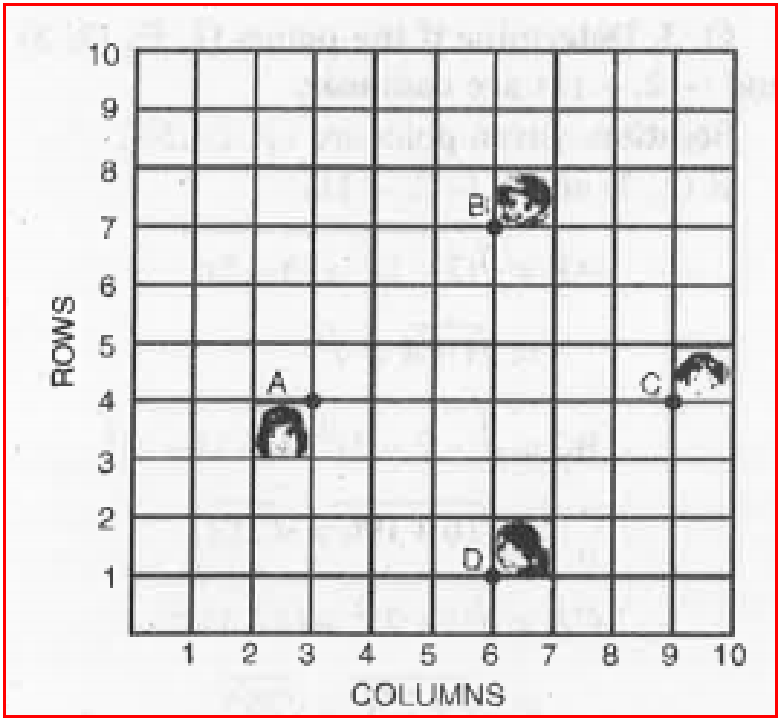
7. In a classroom, 4 friends are seated at the points A, B, C and D as shown in fig. Champa and Chameli walk into the class and after observing for a few minutes Champa asks Chameli, “Don’t you think ABCD is a square” ? Chameli disagrees. Using distance formula,

find which of them is correct, and why ?



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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 points 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 equidistantfrom P(5,- 3) and R (x, 6),find the values of x.Also find the distances QR and PR.

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14. 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

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

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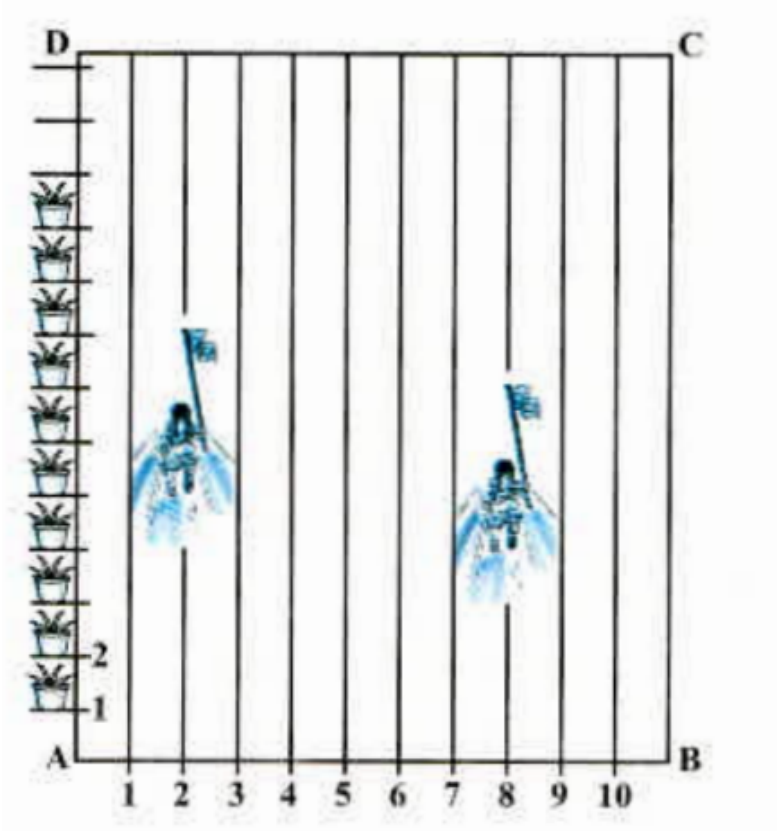
3. To conduct Sports Day activities, in your rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1m each. 100 Flower pots have

been placed at a distance of 1m from each other along AD, as shown in Fig. 7. 12. Niharika runs 1/4 th the distance AD on the 2nd line and posts a green flag. Preet runs 1/5th the distance AD on the eighth line and posts a red flag. What is the distance between both the flags? If Rashmi has to post a blue flag exactly halfway between the line segment joining the

two flags, where should she post her flag?



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4. Find the ratio in which the 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 co ordinates of the point of division.

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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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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 Pliesin the line segment AB.

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9. Find the coordinates of the points which divides 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 the vertices are (3, 0) , (4, 5) ,(- 1, 4) and(— 2,- 1) taken in order.

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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 eollinear.,- (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 the area of the triangle formed 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),(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 points (6,- 6), (3,- 7) and (3, 3).

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

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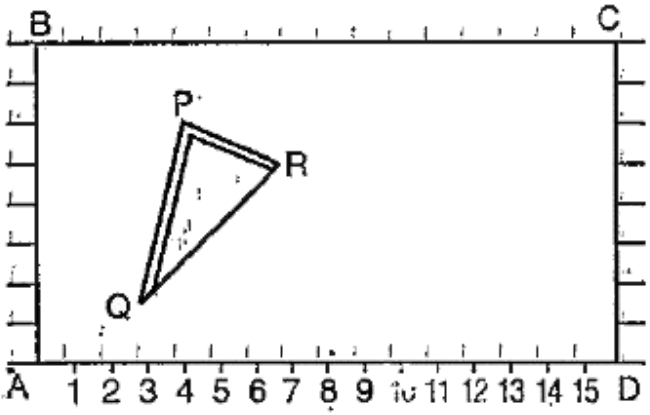
5. The class X students of a secondary school in Krishinagar have been allotted a rectangular plot of land for their gardening activity. Saplings of Gulmohar are planted on the boundary at a distance of 1m from each

other. There is a triangular grass lawn in the plot as shown in the figure. The student are to sow seeds of flowering plants on the remaining area of the plot.



Taking A as origin, find the coordinates of the vertices of the triangle.

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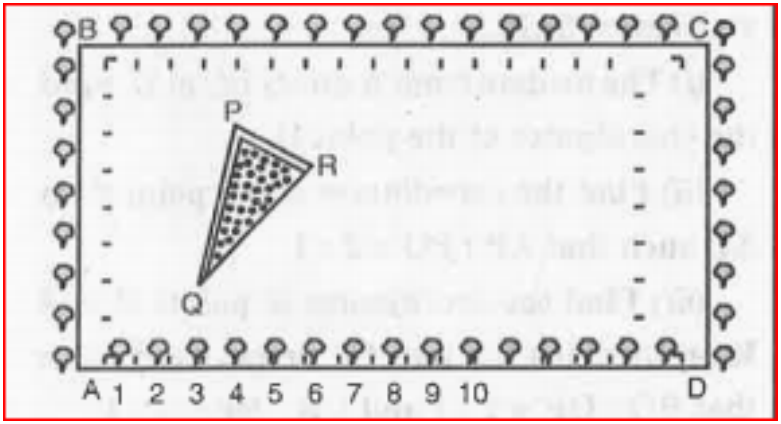
6. The Class X students of a secondary school in Krishinagar have been allotted a rectangular plot of land for their gardening activity. Sapling of Gulmohar are planted on the boundary at a distance of lm from each other. There is a triangular grassy lawn in the plot as shown in the Fig. The students are to sow seeds of flowering plants on the remaining area of the plot.:- Taking A as origin, find the coordinates of the vertices of the

triangle.



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7. The vertices of a $\triangle ABC$ are A(4,6), B(l,5) and C(7, 2). A line is drawn to intersect sides AB and AC at D andErespectively,such that $\frac{AD}{AB} = \frac{AE}{AC} = \frac{1}{4}$. Calculate the area of the

$\triangle ADE$ and compare it with the area of $\triangle ABC$.

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8. Let (4, 2), B (6, 5) and C (1, 4) be the vertices of $\triangle ABC$. :- 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 $\triangle ABC$. :- Find the coordinates of the point P on AD such that AP : PD = 2:1

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10. Let (4, 2), B (6, 5) and C (1, 4) be the vertices of $\triangle ABC$. :- 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 $\triangle ABC$. :- What do you observe ?

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12. Let A(4, 2), B (6, 5) and C (1, 4) be the vertices of $\triangle ABC$. :- If (x_1, y_1) , B (x_2, y_2) and C(x_3, y_3) the vertices of $\triangle ABC$, find the coordinates of the centroid of the triangle.

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13. A (- 1, - 1), B (- 1, 4), C (5, 4) and D (5, - 1). P, Q, R and S are the mid points of AB, BC, CD and DA respectively. Is the quadrilateral PQRS a square ? a rectangle ? or a rhombus ? Justify your answer

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