



MATHS

BOOKS - SWAN 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 $(36, 15)$.



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



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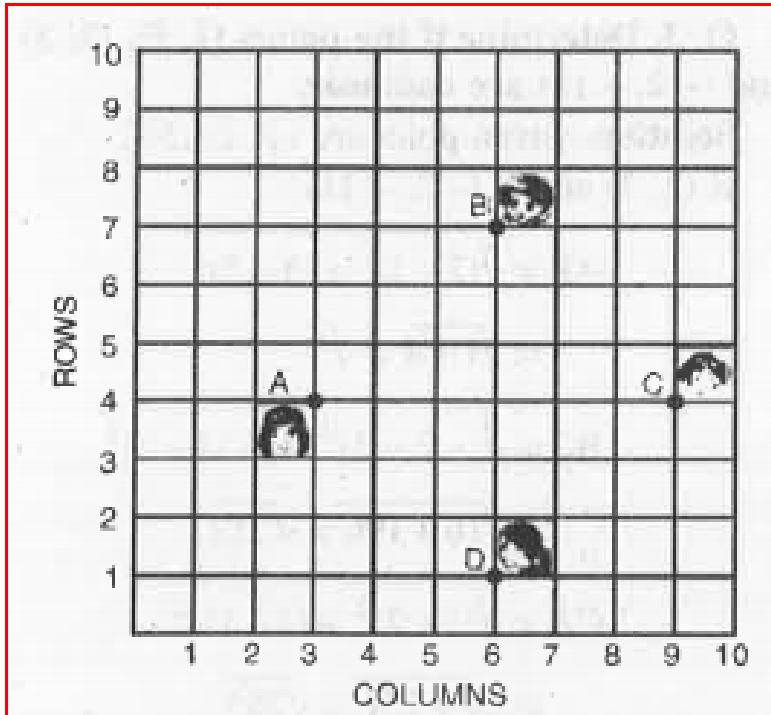
6. Check whether $(5, -2)$, $(6, 4)$ and $(7, -2)$ are the vertices of an isosceles triangle.



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



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12. Find the value 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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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 $(-2, -3)$.

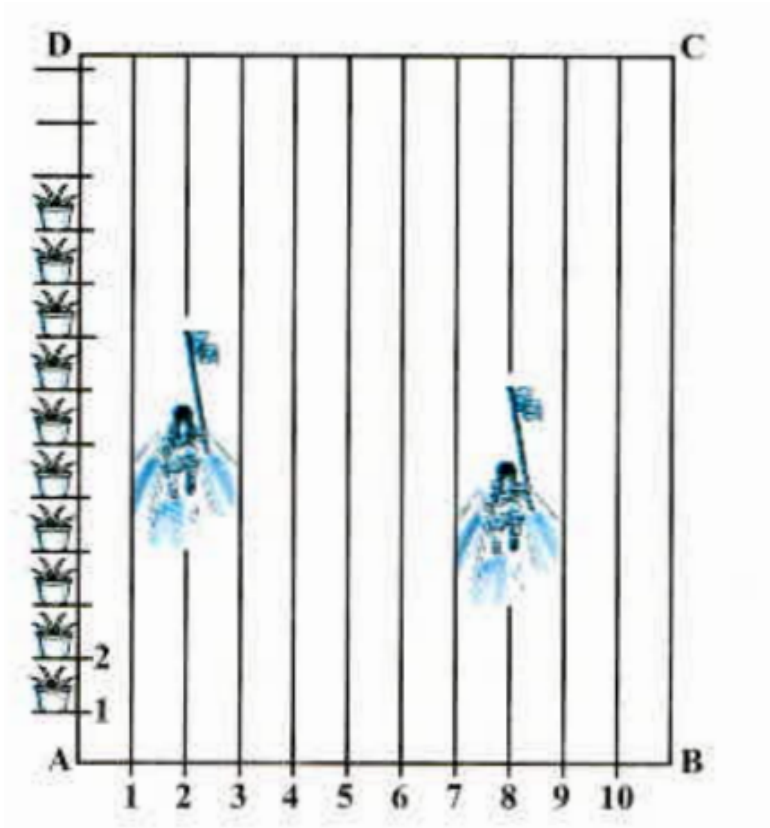


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3. To conduct Sports Day activities, in your rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1m each. 100 Flower pots have

been placed at a distance of 1m from each other along AD, as shown in Fig. 7. 12. Niharika runs $\frac{1}{4}$ th the distance AD on the 2nd line and posts a green flag. Preet runs $\frac{1}{5}$ th 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 P lies in 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 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 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 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 $\triangle ABC$ 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 vertices of a $\triangle ABC$ 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 the

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



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6. 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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7. 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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8. Let $A(4, 2)$, $B(6, 5)$ 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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9. 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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10. 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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11. 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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