

Q.1 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 point D.

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

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

(iv) What do you observe?

(v) 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.

- Q.2 Find the centre of a circle passing through the points (6, -6), (3, -7) and (3, 3).
- Q.3 The two opposite vertices of a square are (-1,
 2) and (3, 2). Find the coordinates of the other two vertices.
- Q.4 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.
- Q.5 You have studied in Class IX 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).
- Q.6 To conduct Sports Day activities, in your rectangular shaped school ground ABCD, lines have been drawn with chalk powder at a distance of 1 m each. 100 flower pots have been placed at a distance of 1 m from each other along AD, as shown in the following figure. Niharika runs ¹/₄th 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?



Q.7 If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices of a parallelogram taken in order, find x and y.

Over Check whether (5, -2), (6, 4) and (7, -2) are

- the vertices of an isosceles triangle.
- **O.9** Find the coordinates of the point which divides
- the join of (-1, 7) and (4, -3) in the ratio 2:3.
- **Q.10** If (1, 2), (4, y), (x, 6) and (3, 5) are the vertices
- of a parallelogram taken in order, find x and y.
- Q.11 Find a relation between x and y if the points (x, y), (1, 2) and (7, 0) are collinear.
- **Q.12** 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)
- Q.13 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

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WEEKLY TEST CLASS-X

- = $\frac{1}{2}$ (product of its diagonals)]
- Q.14 In a classroom, 4 friends are seated at the points A, B, C and D as shown in the following figure. 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.



- Q.15 Find the coordinates of the points which divide the line segment joining A (- 2, 2) and B (2, 8) into four equal parts.
- Q.16 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.
- Q.17 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 . Calculate the area of the \triangle ADE and compare it with the area of \triangle ABC. (Recall Converse of basic proportionality theorem and Theorem 6.6 related to ratio of areas of two similar triangles).

- Q.18 Find the point on the *x*-axis which is
 - equidistant from (2, -5) and (-2, 9).
- Q.19
 Find the area of the triangle whose vertices are:

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

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

 Q.20

 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 $\frac{AD}{AB} = \frac{AE}{AC} = \frac{1}{4}$.

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