



MATHEMATICS OF CLASS X CHAPTER – 7 COORDINATE GEOMETRY

Q.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)

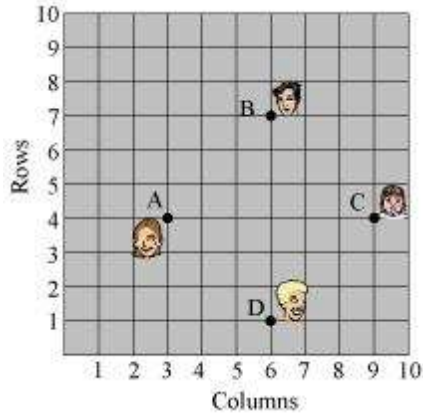
Q.2. Find the distance between the points (0, 0) and (36, 15). Can you now find the distance between the two towns A and B discussed in Section 7.2.

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

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

Q.5. 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.6. Name the type of quadrilateral formed, if any, by the following points, and give reasons for your answer:

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

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

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

Q.7. Find the point on the x -axis which is equidistant from $(2, -5)$ and $(-2, 9)$.

Q.8. Find the values of y for which the distance between the points $P(2, -3)$ and $Q(10, y)$ is 10 units.

Q.9. If $Q(0, 1)$ is equidistant from $P(5, -3)$ and $R(x, 6)$, find the values of x . Also find the distance QR and PR .

Q.10. Find a relation between x and y such that the point (x, y) is equidistant from the point $(3, 6)$ and $(-3, 4)$.

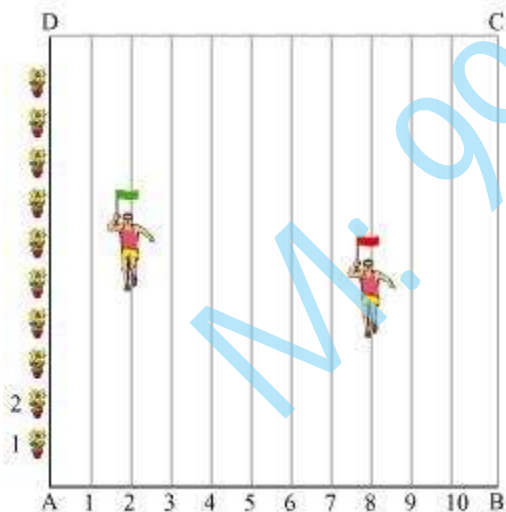
Q.11. Find the coordinates of the point which divides the join of $(-1, 7)$ and $(4, -3)$ in the ratio 2:3.

Q.12. Find the coordinates of the points of trisection of the line segment joining $(4, -1)$ and $(-2, -3)$.



Q.13. 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 $\frac{1}{4}$ 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?



Q.14. Find the ratio in which the line segment joining the points $(-3, 10)$ and $(6, -8)$ is divided by $(-1, 6)$.

Q.15. 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.16. If $(1, 2)$, $(4, y)$, $(x, 6)$ and $(3, 5)$ are the vertices of a parallelogram taken in order, find x and y .

Q.17. Find the coordinates of a point A, where AB is the diameter of circle whose centre is $(2, -3)$ and B is $(1, 4)$

Q.18. 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.

Q.19. Find the coordinates of the points which divide the line segment joining A $(-2, 2)$ and B $(2, 8)$ into four equal parts.

Q.20. 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)]

Q.21. Find the area of the triangle whose vertices are:

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

Q.22. 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.23. 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.24. Find the area of the quadrilateral whose vertices, taken in order, are $(-4, -2)$, $(-3, -5)$, $(3, -2)$ and $(2, 3)$



Q.25. 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)

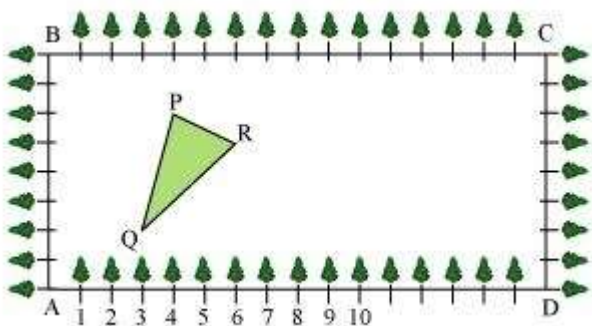
Q.26. Determine the ratio in which the line $2x + y - 4 = 0$ divides the line segment joining the points A(2, - 2) and B(3, 7)

Q.27. Find a relation between x and y if the points (x, y) , (1, 2) and (7, 0) are collinear

Q.28. Find the centre of a circle passing through the points (6, - 6), (3, - 7) and (3, 3).

Q.29. The two opposite vertices of a square are (- 1, 2) and (3, 2). Find the coordinates of the other two vertices.

Q.30. 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 1 m from each other. There is a triangular grassy lawn in the plot as shown in the following 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 ΔPQR if C is the origin?
Also calculate the areas of the triangles in these cases. What do you observe?

Q.31. 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 . (Recall Converse of basic proportionality theorem and Theorem 6.6 related to

ratio of areas of two similar triangles)

Q.32. 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.33. 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 mid-points of AB, BC, CD, and DA respectively. Is the quadrilateral PQRS is a square? a rectangle? or a rhombus? Justify your answer.