



RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATION

CBSE PRACTICE PAPER(2024)

(Mathematics)

Grade : X
marks

Marks: 40

Chapter: CO-ORDINATE GEOMETRY SET-1
90 minutes

Time:

SECTION A

(This section comprises of Multiple-choice questions (MCQ) of 1 mark each.)

- The ratio in which the line segment joining (2, -3) and (5, 6) is divided by X-axis
(a) 1 : 2 (b) 2 : 1 (c) 2 : 5 (d) 5 : 2
- (x, y) is 5 unit away from the origin. How many such points lie in the third quadrant?
(a) 0 (b) 1 (c) 2 (d) infinitely many
- The distance between the points A(a + b, a – b) and B(a – b, – a – b) is
(a) $2\sqrt{a^2+b^2}$ (b) $\sqrt{a^2+b^2}$ (c) $2\sqrt{b^2- a^2}$ (d) $\sqrt{b^2- a^2}$
- The ratio in which the points P(3/4, 5/12) divides the line segments joining the points A(1/2, 3/2) and B(2, – 5) is
(a) 5 : 1 (b) 1 : 6 (c) 1 : 5 (d) 6 : 1
- The coordinate of the point, in which the diagonals of the parallelogram formed by joining the points (-2, -1), (1,0), (4, 3) and (1, 2) intersect are
(a) (0, 1) (b) (1, 1) (c) (1, 2) (d) None of these
- If the point C(k, 4) divides the join of points A(2,6) and 5(5,1) in the ratio 1 : 3, then the value of k is ?
(a) 11 (b) 29/4 (c) 11/4 (d) 9/4
- If the point P(k, 0) divides the line segment joining the points A(2, – 2) and B(-7, 4) in the ratio 1:2,
(a) 1 (b) 2 (c) – 2 (d) -1
- A parallelogram has vertices P(1, 4), Q(7, 11), R(a, 4) and S(1, -3). Then, the value of a is
(a) 6 (b) 7 (c) 5 (d) 4
- If the distance between the points (x, -1) and (3, 2) is 5 units, then the value of x is
(a) – 7 or -1 (b) – 7 or 1 (c) 7 or 1 (d) 7 or – 1
- Assertion (A): Points A(6,4), B(-4, – 6) and C(4,6) are such that $AB = \sqrt{200}$, $BC = \sqrt{208}$ and $AC = \sqrt{8}$. Since, $AB + BC > AC$, points A, B and C form a triangle. Reason (R): If $BC^2 = AB^2 + AC^2$, then ΔABC is a right angled triangle, right angled at A.
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

SECTION B

(This section comprises of very short answer type-questions (VSA) of 2 marks each)

- 11 Find a relation between x and y , such that the point (x, y) is equidistant from the points $(3, 6)$ and $(-3, 4)$.
- 12 Find the ratio in which the point $(-3, p)$ divides the line segment joining the points $(-5, -4)$ and $(-2, 3)$. Also, determine the value of p .
- 13 Points $A(3, 1)$, $B(12, -2)$ and $C(0, 2)$ cannot be the vertices of a triangle.

SECTION C

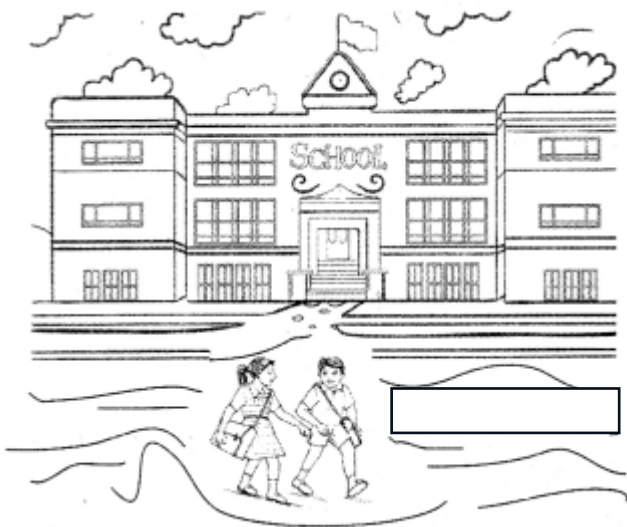
(This section comprises of short answer type questions (SA) of 3 marks each)

- 14 If $(-3, 2)$, $(1, -2)$ and $(5, 6)$ are the mid-point of the sides of a triangle, then find the coordinates of the vertices of the triangle.
- 15 If the points $A(1, -2)$, $B(2, 3)$, $C(a, 2)$ and $D(-4, -3)$ form a parallelogram, find the value of a and height of the parallelogram taking AB as base.
- 16 Ayush starts walking from his house to office. Instead of going to the office directly, he goes to a bank first, from there to his daughter's school and then reaches the office. What is the extra distance travelled by Ayush in reaching his office? (Assume that all distances covered are in straight lines). If the house is situated at $(2, 4)$, bank at $(5, 8)$, school at $(13, 14)$ and office at $(13, 26)$ and coordinates are in km.

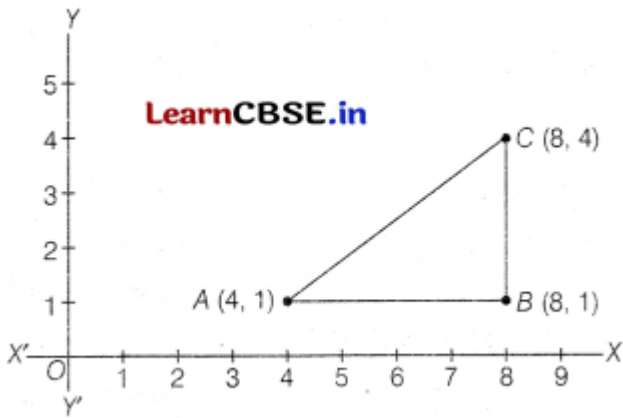
SECTION D

(This section comprises of long answer-type questions (LA) of 5 marks each)

- 17 Delhi Public School society, which has so many schools in different cities of India. One of the branch of Delhi Public School is in Ghaziabad. In that school thousand of students study in the classroom. Out of them one of the boy is standing in the ground having coordinates $(4, 1)$ facing towards East. He moves 4 units in straight line, then turns left and moves 3 units and stops. Now, he is at his home.



The representation of the above situation on the coordinate axes is shown below

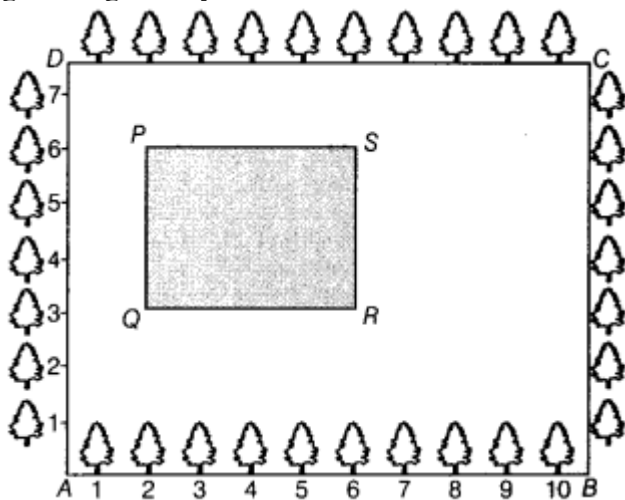


Based on the above information, answer the following questions

- (i) Find the area of $\triangle ABC$. (1)
- (ii) If we draw perpendicular lines from points A and B to the X-axis, then find the region covered by these perpendicular lines. (1)
- iii) What is the shortest distance between his school and house? (1)
- (iv) Suppose point D divides the line segment AB in the ratio 1:2, then find the coordinates of D. (2)

18 Tree Platanation to Control Pollution

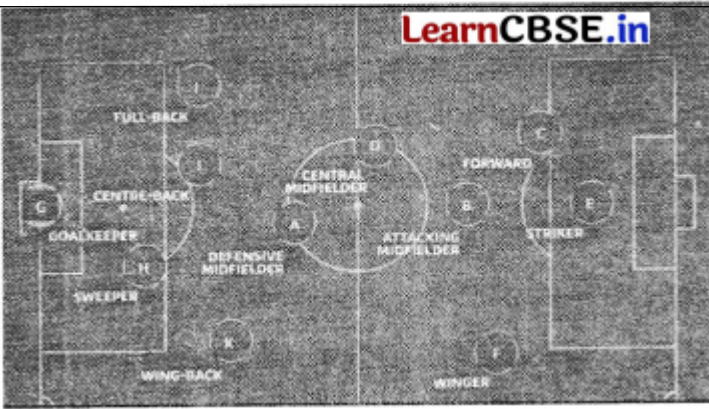
The class X students of a secondary school in Krishnagar have been allotted a rectangular plot of land for this gardening activity



Sapling of Gulmohar are planted on the boundary at a distance of 1 m from each other. There is a rectangular gracy lawn in , the plot as shown in above figure. The students sowing seeds of flowering plants on the remaining area of the plot.

- (i) Find the coordinates of point Q and S. [1]
- (ii) If the point m divides the line QS in the ratio 3:2, then find the coordinates of m. [2]
- (iii) If the point G divides the line QR in the ratio 1:2, then find the coordinates of G. [2]
- (iv) Find the distance between the vertices of diagonal Q and S. [1]

19 Tharunya was thrilled to know that the football tournament is fixed with a monthly time frame from 20th July to 20th August 2023 and for the first time in the FIFA Women's World Cup's history, two nations host in 10 venues. Her father felt that the game can be better understood, if the position of players is represented as points on a coordinate plane.



- (i) At an instance, the midfielders and forward formed a parallelogram. Find the position of the central midfielder (D), if the position of other players who formed the parallelogram are $A(1, 2)$, $5(4, 3)$ and $C(6, 6)$. [1]
- (ii) Check if the Goal keeper $G(-3, 5)$, Sweeper $H(3, 1)$ and Wing-back $K(0, 3)$ fall on a same straight line. [2]
- (iii) Check if the full-back $J(5, -3)$ and centre-back $I(-4, 6)$ are equidistant from forward $C(0, 1)$ and if C is the mid-point of IJ . [2]
- (iv) If Defensive midfielder $A(1, 4)$, Attacking midfielder $B(2, -3)$ and Striker $E(a, b)$ lie on the same straight line and B is equidistant from A and E , find the position of E . [1]