



INDIAN SCHOOL AL WADI AL KABIR

Class X, Mathematics

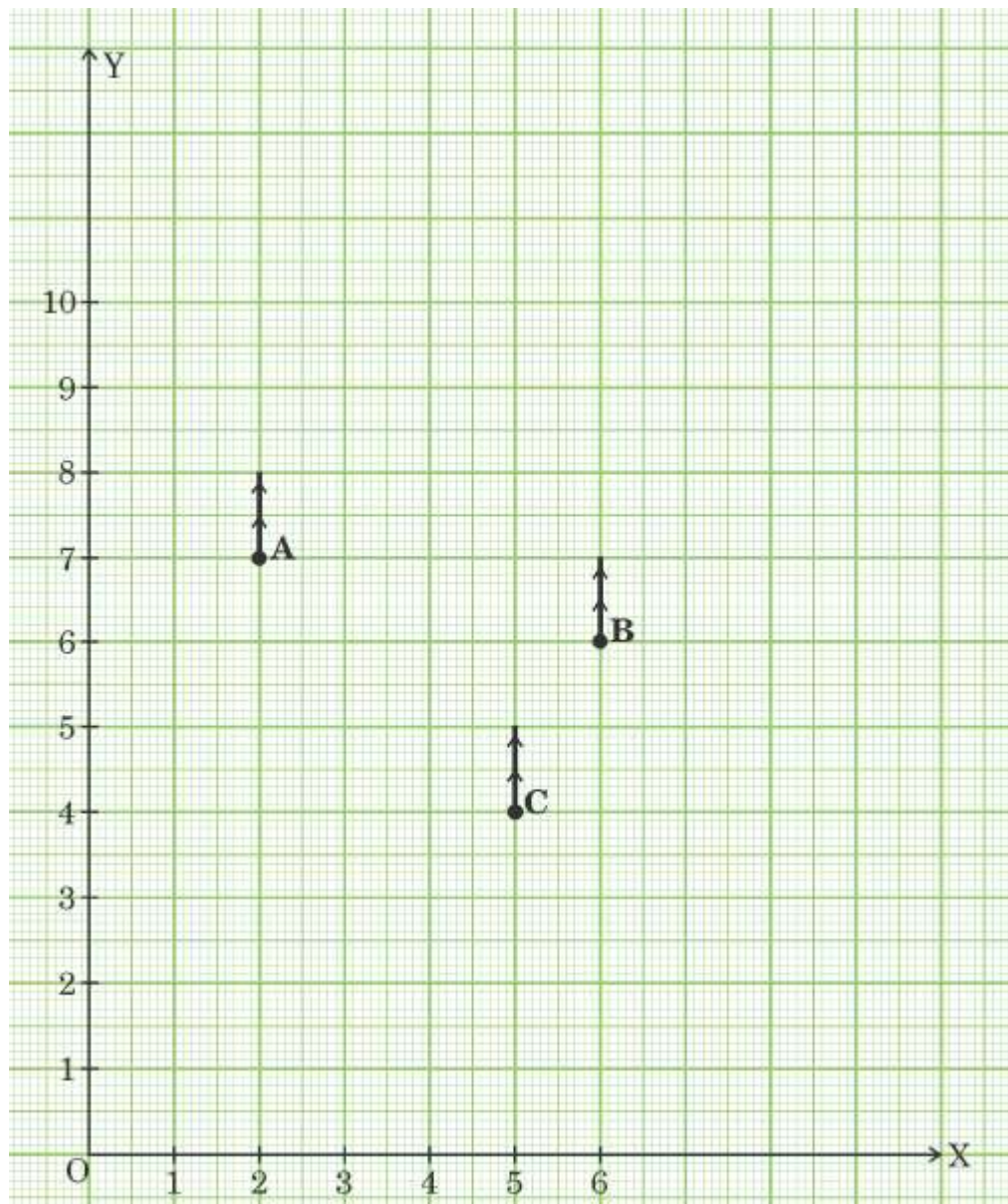
Worksheet- Coordinate Geometry (DTQ)

25 -08 - 2024

Q. No.	Questions of 2 Marks each.
1.	In what ratio is the line segment joining the points (3, -5) and (-1, 6) divided by the line $y = x$.
2.	A(3, 0), B(6, 4) and C(-1, 3) are vertices of a triangle ABC. Find the length of its median BE.
3.	Prove that the points (3, 0), (6, 4) and (-1, 3) are the vertices of an isosceles triangle.
4.	Find the points on the x-axis, each of which is at a distance of 10 units from the point A (11, -8).
5.	Points A(3, 1), B(5, 1), C(a, b) and D(4, 3) are vertices of a parallelogram ABCD. Find the values of a and b.
	Questions of 3 Marks each.
6.	Find the ratio in which the point $\left(\frac{8}{5}, y\right)$ divides the line segment joining the points (1, 2) and (2, 3). Also find the value of y.
7.	ABCD is a rectangle formed by the points A (-1, -1), B(-1, 6), C(3, 6) and D(3, -1). P, Q, R and S are mid-points of sides AB, BC, CD and DA respectively. Show that diagonals of the quadrilateral PQRS bisect each other.
8.	Find the ratio in which the line $x - 3y = 0$ divides the line segment joining the points (-2, -5) and (6, 3). Find the coordinates of the point of intersection.
9.	Points P and Q trisect the line segment joining the points A(-2, 0) and B(0, 8) such that P is near to A. Find the coordinates of points P and Q.

10.	If the distances of $P(x, y)$ from $A(5,1)$ and $B(-1,5)$ are equal, then prove that $3x = 2y$.
	Questions of 5 Marks each.
11.	The vertices of a quadrilateral ABCD are $A(6, -2)$, $B(9, 2)$, $C(5, -1)$ and $D(2, -5)$. Prove that ABCD is a rhombus, and not a square.
12.	If $P(9a - 2, -b)$ divides the line segment joining $A(3a + 1, -3)$ and $B(8a, 5)$ in the ratio 3:1. find the values of a and b .
	Case Study Based Questions (4 Marks)
13.	Ryan, from a very young age, was fascinated by the twinkling of stars and the vastness of space. He always dreamt of becoming an astronaut one day. So he started to sketch his own rocket designs on the graph sheet. One such design is given below: Based on the above, answer the following questions: (i) Find the mid-point of the segment joining F and G. (1m) (ii) (a) What is the distance between the points A and C? (2m) OR (b) Find the coordinates of the point which divides the line segment joining the points A and B in the ratio 1 : 3 internally. (2 m) (iii) What are the coordinates of the point D? (1 m)

14. Resident Welfare Association (RWA) of Gulmohar Society in Delhi, have installed three electric poles A, B and C in the society's common park. Despite these three poles, some parts of the park are still in the dark. So, RWA decides to have one more electric pole D in the park. The park can be modelled as a coordinate system given below.



On the basis of the above information, answer the following questions:

- (i) What is the position of the pole C? (1 m)
- (ii) What is the distance of the pole B from the corner O of the park? (1 m)
- (iii)(a) Find the position of the fourth pole D so that the four points A, B, C and D form a parallelogram ABCD. (2 m)

OR

- (b) Find the distance between poles A and C. (2 m)

	Answers							
Answers	1	8:7	2	$\sqrt{\frac{125}{4}}$ or $\frac{5\sqrt{5}}{2}$	4	(17,0),(5,0)	5	a = 6, b = 3
	6	3:2, $\frac{13}{5}$	8	13:3, $(\frac{9}{2}, \frac{3}{2})$	9	$(\frac{-4}{3}, \frac{8}{3})$ $(\frac{-2}{3}, \frac{16}{3})$	12	a = 1, b = -3
	13	(i)(-1,2) (ii)(a) $\sqrt{52}$ or $2\sqrt{13}$ OR (b) (3, 7/2) (iii) D(-2, -5)						
	14	(i)(5, 4) (ii) $6\sqrt{2}$ units (iii) (a) (1, 5) OR $3\sqrt{2}$ units						