NCERT Solutions Class 9 Maths
Chapter 3: Coordinate Geometry
EXERCISE 3.1

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Quick Summary: In NCERT Solutions Class 9 Maths Chapter 3 Exercise 3.1, students learn the fundamentals of the Cartesian coordinate system and how to locate points on a plane using ordered pairs. This exercise covers the basic principles of coordinate geometry, including plotting points and understanding the structure of the coordinate plane, which are essential building blocks for CBSE Class 9 and higher-level mathematics.

Key Takeaways:

- Understanding the Cartesian plane with x-axis and y-axis intersecting at origin O(0,0)
- Learning to represent any point as an ordered pair (x, y) where x is abscissa and y is ordinate
- Identifying quadrants and their sign conventions: I(+,+), II(-,+), III(-,-), IV(+,-)
- Mastering coordinate plotting techniques essential for distance formula applications in advanced exercises

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Question 1

QUESTION

How will you describe the position of a table lamp on your study table to another person?

SOLUTION

This question tests your understanding of how to describe the position of an object using coordinates, similar to how we use the Cartesian plane.

Step 1: Visualize the situation

Imagine your study table as a flat surface (a plane) and the table lamp as a point on that surface. To describe the lamp's position, we need a reference point and directions.

Step 2: Choose reference lines

Select two perpendicular edges of the table as your reference lines. These will act like the x and y axes in a coordinate system. It's easiest to use the edges that form a corner of the table.

Step 3: Measure the distances

Measure the perpendicular distance of the lamp from one of the chosen edges (say, the longer edge). Let's assume this distance is 25 cm. This is similar to finding the x-coordinate.

Next, measure the perpendicular distance of the lamp from the other chosen edge (the shorter edge). Let's assume this distance is 30 cm. This is similar to finding the y-coordinate.

Step 4: Write the coordinates

Now, you can describe the position of the lamp using an ordered pair of coordinates. If we consider the distance from the shorter edge as the x-coordinate and the distance from the longer edge as the y-coordinate, then the position of the lamp is (30, 25).

Alternatively, if you consider the distance from the longer edge as the x-coordinate and the distance from the shorter edge as the y-coordinate, then the position of the lamp is (25, 30).

Final Answer:

The position of the table lamp can be described as (30, 25) or (25, 30), depending on which edge you choose as your reference for the x and y coordinates.

Conclusion:

This method works because it uses two perpendicular distances to uniquely identify the lamp's location on the table's surface, just like how coordinates work in a 2D plane. The order of the coordinates is important, so clearly define which edge corresponds to which coordinate.

ANSWER

Consider the lamp as a point and table as a plane. Choose any two perpendicular edges of the table. Measure the distance of the lamp from the longer edge, suppose it is 25 cm. Again, measure the distance

of the lamp from the shorter edge, and suppose it is 30 cm. You can write the position of the lamp as (30, 25) or (25, 30), depending on the order you fix.

Question 2

QUESTION

(Street Plan): A city has two main roads which cross each other at the centre—one running North–South and the other East–West. All other streets run parallel to these and are 200 m apart, with 5 streets in each direction. Using the convention that the cross-street formed by the 2nd North–South street and 5th East–West street is written as (2, 5), find:

(i) how many cross-streets can be referred to as (4, 3)
(ii) how many cross-streets can be referred to as (3, 4)

SOLUTION

This question tests our understanding of coordinate systems and how locations can be uniquely identified using ordered pairs.

(i) How many cross-streets can be referred to as (4, 3)?

Step 1: Understand the coordinate system

The problem defines a coordinate system where the first number represents the North-South street and the second number represents the East-West street. The intersection of the 2nd North-South street and the 5th East-West street is represented as (2, 5).

Step 2: Apply the given convention to (4, 3)

According to the convention, (4, 3) refers to the intersection of the 4th North-South street and the 3rd East-West street.

Step 3: Determine uniqueness

Since the main roads are the reference axes and all other streets are parallel and equally spaced, each intersection point is uniquely defined by its North-South and East-West street numbers. Therefore, there is only one intersection that can be referred to as (4, 3).

Final Answer: Only one cross-street can be referred to as (4, 3).

(ii) How many cross-streets can be referred to as (3, 4)?

Step 1: Apply the given convention to (3, 4)

Following the same convention, (3, 4) refers to the intersection of the 3rd North-South street and the 4th East-West street.

Step 2: Determine uniqueness

Similar to part (i), because of the defined coordinate system with equally spaced parallel streets, each intersection is uniquely identified. The intersection of the 3rd North-South street and the 4th East-West street is a specific, single point.

Final Answer: Only one cross-street can be referred to as (3, 4).

Conclusion: The ordered pair system allows for unique identification of each cross-street in the city plan, given the reference axes and parallel street arrangement.

ANSWER

The Street plan is shown in the figure given below.

Both the cross-streets are marked in the figure above. They are uniquely found because of the two reference lines we have used for locating them.

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🔢 Key Formulas

Important Formulas for Exercise 3.1

Formula / Concept	Description
Cartesian System	The system used to describe the position of a point in a plane by using two perpendicular lines.
Coordinate Axes	The two perpendicular lines in a Cartesian system. The horizontal line is the x-axis and the vertical line is the y-axis.
Origin	The point of intersection of the coordinate axes. Its coordinates are (0, 0).
Quadrants	The coordinate axes divide the plane into four parts, each called a quadrant. They are numbered I, II, III, and IV in the anti-clockwise direction from OX.
Coordinates of a Point	The position of a point is described by an ordered pair of numbers (x, y).
Abscissa	The x-coordinate of a point. It is the perpendicular distance of the point from the y-axis.

Formula / Concept	Description
Ordinate	The y-coordinate of a point. It is the perpendicular distance of the point from the x-axis.
Point on the x-axis	Any point lying on the x-axis has coordinates of the form (x, 0).
Point on the y-axis	Any point lying on the y-axis has coordinates of the form (0, y).
Sign Conventions in Quadrants	• **Quadrant I:** (+, +) • **Quadrant II:** (-, +) • **Quadrant III:** (-, -) • **Quadrant IV:** (+, -)

Top FAQs

Q1. How many questions are in NCERT Solutions Class 9 Maths Chapter 3 Coordinate Geometry Exercise 3.1?

Exercise 3.1 of NCERT Solutions for Class 9 Maths Chapter 3 Coordinate Geometry contains exactly 2 questions. These questions focus on understanding the Cartesian System and plotting points on the coordinate plane, which forms the foundation for the entire chapter on Coordinate Geometry.

Q2. Where can I download free PDF of NCERT Solutions for Class 9 Maths Chapter 3 Coordinate Geometry Exercise 3.1 for CBSE 2025-26?

You can download the free PDF of NCERT Solutions for Class 9 Maths Chapter 3 Coordinate Geometry Exercise 3.1 from the official NCERT website or trusted educational portals. These PDF solutions are updated as per the latest CBSE syllabus 2025-26 and include step by step solutions for all 2 questions in Exercise 3.1.

Q3. How many marks does Coordinate Geometry Chapter 3 carry in CBSE Class 9 Maths board exam 2025-26?

Coordinate Geometry (Chapter 3) carries 4 marks weightage in the CBSE Class 9 Maths board exam 2025-26 under Unit III. Students should thoroughly practice NCERT Solutions for Exercise 3.1 and other exercises to score full marks in this chapter, as it includes both theoretical concepts and practical applications of the Cartesian System.

Q4. Which is the most difficult question in Exercise 3.1 of NCERT Solutions Class 9 Maths Chapter 3 Coordinate Geometry?

Question 2 in Exercise 3.1 of Class 9 Maths Chapter 3 Coordinate Geometry is considered slightly more challenging as it requires plotting multiple points and identifying their positions in different quadrants of the Cartesian plane. However, with step by step solutions and proper understanding of the coordinate system, both questions in Exercise 3.1 can be easily solved.

Q5. What is Cartesian System explained in NCERT Solutions for Class 9 Maths Chapter 3 Exercise 3.1?

The Cartesian System in NCERT Class 9 Maths Chapter 3 Exercise 3.1 is a coordinate system that uses two perpendicular number lines (x-axis and y-axis) to locate points in a plane using ordered pairs (x, y). This system, named after mathematician René Descartes, divides the plane into four quadrants and is fundamental for understanding coordinate geometry concepts required for CBSE board exam 2025-26.

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