NCERT Solutions for Class 9 Maths Chapter 3: Students can benefit from the NCERT Solutions for Class 9 Maths Chapter 3 Coordinate Geometry as they can improve their board exam scores. At PW, our goal is to assist students by providing comprehensive chapter-by-chapter solutions that facilitate easy conceptual understanding.

Students can fully understand "Coordinate Geometry" by working through the problems in the NCERT Solutions for Class 9 Maths. Aside from this, students can also use NCERT notes, sample papers, textbooks, past years' papers, exemplar problems, and other materials to help them study for the CBSE examinations and get good grades.

NCERT Solutions for Class 9 Maths Chapter 3 Coordinate Geometry Overview

Chapter 3 of Class 9 NCERT Maths, titled "Coordinate Geometry," introduces students to the fundamentals of coordinate systems and their applications in geometry. The chapter begins with an explanation of the Cartesian coordinate system, where points are located using pairs of numbers called coordinates. It covers the concept of the coordinate plane, defined by two perpendicular lines: the x-axis (horizontal) and the y-axis (vertical), which intersect at the origin (0,0).

Students learn how to plot points on this plane and understand their positions relative to the axes. The chapter also delves into the distance formula, which helps calculate the distance between two points in a coordinate plane, and the section formula, used for finding the coordinates of a point dividing a line segment in a given ratio.

Additionally, it introduces the concept of the midpoint formula to determine the midpoint of a line segment. By integrating these concepts, students gain a foundational understanding of how algebraic equations and geometric concepts interact, setting the stage for more advanced studies in coordinate geometry. This chapter is crucial for developing spatial reasoning and problem-solving skills in mathematics.

NCERT Solutions for Class 9 Maths Chapter 3

Below we have provided NCERT Solutions for Class 9 Maths Chapter 3. This NCERT Solutions for Class 9 Maths Chapter 3 will help students to understand the chapter better.

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

Solution:

We use a perpendicular and a horizontal line to depict the location of the table lamp on the study table. Take one corner of the table as the origin, where the X and Y axes cross, and think of the table as a plane with x and y axes. Then, take perpendicular lines as the Y axis and horizontal as the X axis, respectively.

The Y-axis now represents the table's length, and the X-axis represents its width. Join the line to the table lamp from the origin, then indicate the point. After calculating the point's distances from the X and Y axes, the distances should be expressed in coordinates.

The distance of the point from the X-axis and the Y-axis is x and y, respectively, so the table lamp will be in (x, y) coordinates.

Here, (x, y) = (15, 25)

2. (Street Plan): A city has two main roads which cross each other at the centre of the city. These two roads are along the North-South direction and East-West direction. All the other streets of the city run parallel to these roads and are 200 m apart. There are 5 streets in each direction. Using 1cm = 200 m, draw a model of the city in your notebook. Represent the roads/streets by single lines.

There are many cross-streets in your model. A particular cross-street is made by two streets, one running in the North-South direction and another in the East-West direction. Each cross street is referred to in the following manner: If the 2nd street running in the North-South direction and 5th in the East-West direction meet at some crossing, then we will call this cross-street (2, 5). Using this convention, 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:
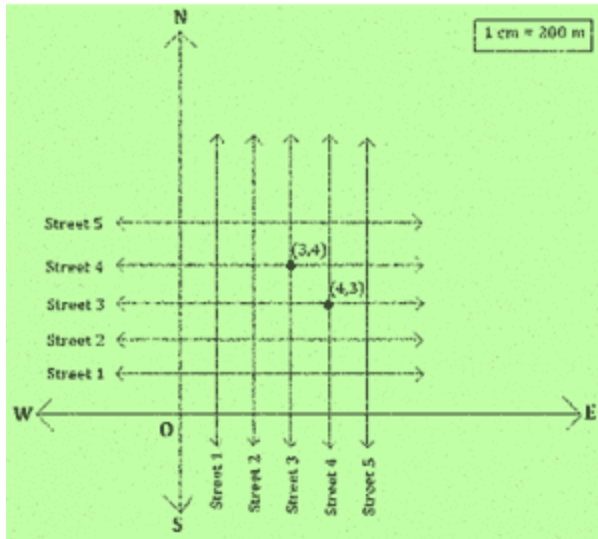
1. Only one street can be referred to as (4,3) (as clear from the figure).
2. Only one street can be referred to as (3,4) (as we see from the figure).

NCERT Solutions for Class 9 Maths Chapter 3 Exercise 3.2

1. Write the answer to each of the following questions.

(i) What is the name of the horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane?

(ii) What is the name of each part of the plane formed by these two lines?

(iii) Write the name of the point where these two lines intersect.

Solution:

(i) The name of horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is the x-axis and the y-axis, respectively.

(ii) The name of each part of the plane formed by these two lines, the x-axis and the y-axis, is quadrants.

(iii) The point where these two lines intersect is called the origin.

2. See Fig.3.14, and write the following.

i. The coordinates of B.

ii. The coordinates of C.
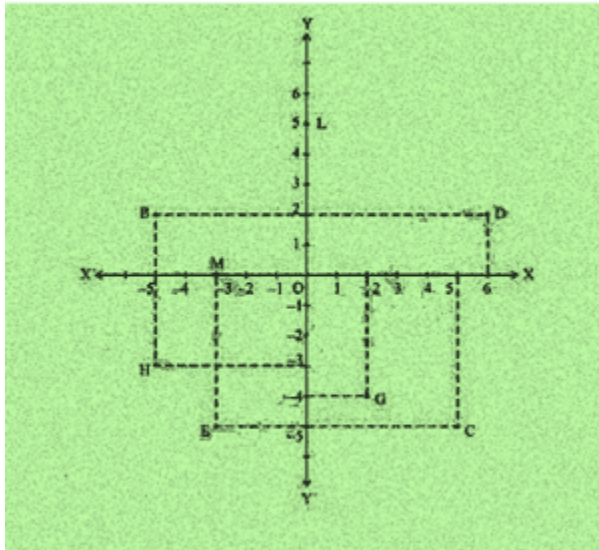
iii. The point identified by the coordinates (–3, –5).

iv. The point identified by the coordinates (2, – 4).

v. The abscissa of the point D.

vi. The ordinate of the point H.

vii. The coordinates of the point L.

viii. The coordinates of the point M.

Solution:

i. The coordinates of B are (−5, 2).

ii. The coordinates of C are (5, −5).

iii. The point identified by the coordinates (−3, −5) is E.

iv. The point identified by the coordinates (2, −4) is G.

v. Abscissa means x coordinate of point D. So, abscissa of point D is 6.

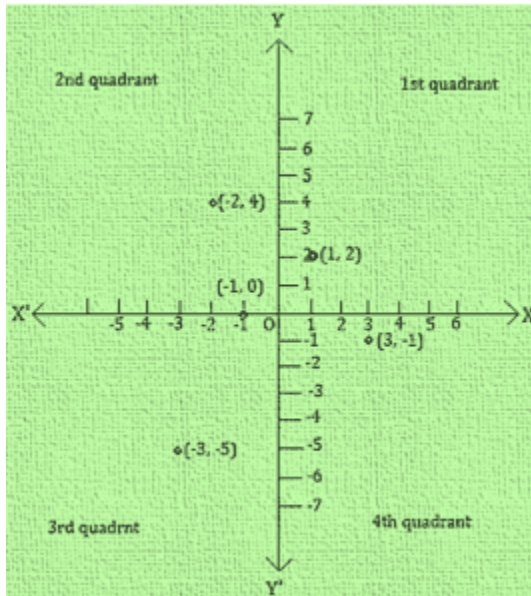vi. Ordinate means y coordinate of point H. So, the ordinate of point H is -3.

vii. The coordinates of point L are (0, 5).

viii. The coordinates of point M are (−3, 0).

NCERT Solutions for Class 9 Maths Chapter 3 Exercise 3.3

1. In which quadrant or on which axis do each of the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5) lie? Verify your answer by locating them on the Cartesian plane.

Solution:

- (– 2, 4): Second Quadrant (II-Quadrant)
- (3, – 1): Fourth Quadrant (IV-Quadrant)
- (– 1, 0): Negative x-axis
- (1, 2): First Quadrant (I-Quadrant)
- (– 3, – 5): Third Quadrant (III-Quadrant)

2. Plot the points (x, y) given in the following table on the plane, choosing suitable units of distance on the axes.

x	-2	-1	0	1	3
y	8	7	-1.25	3	-1

Solution:

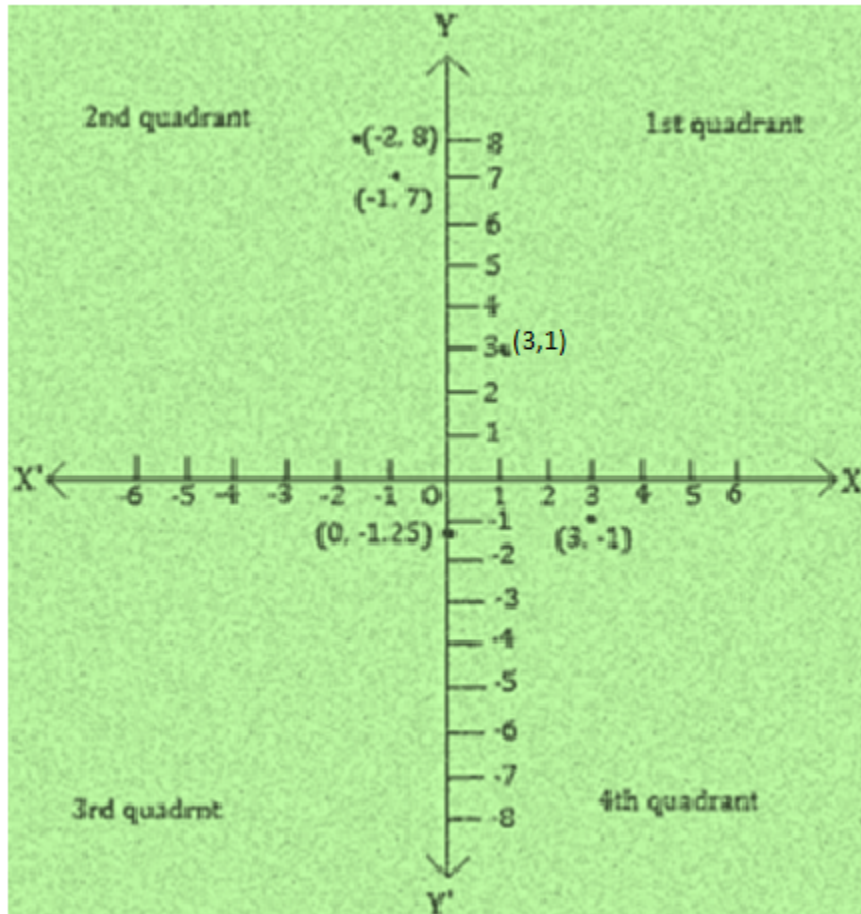The points to be plotted on the (x, y) are

i. (-2, 8)

ii. (-1, 7)

iii. (0, -1.25)

iv. (1, 3)

v. (3, -1)

On the graph, mark the X-axis and the Y-axis. Mark the meeting point as O.

Now, let 1 unit = 1 cm

i. (-2, 8): II- Quadrant, Meeting point of the imaginary lines that starts from 2 units to the left of origin O and from 8 units above the origin O.

ii. (-1, 7): II- Quadrant, Meeting point of the imaginary lines that starts from 1 unit to the left of origin O and from 7 units above the origin O.

iii. (0, -1.25): On the x-axis, 1.25 units to the left of the origin O.

iv. (1, 3): I- Quadrant, Meeting point of the imaginary lines that starts from 1 unit to the right of origin O and from 3 units above the origin O.

v. (3, -1): IV- Quadrant, Meeting point of the imaginary lines that starts from 3 units to the right of origin O and from 1 unit below the origin O.

Benefits of NCERT Solutions for Class 9 Maths Chapter 3

NCERT Solutions for Class 9 Maths Chapter 3 "Coordinate Geometry" offer several benefits for students:

Clear Understanding of Concepts: The solutions provide detailed explanations and step-by-step procedures to solve problems, helping students grasp fundamental concepts like plotting points, the distance formula, and the midpoint formula effectively.

Structured Learning: They follow the NCERT curriculum closely, ensuring that students learn and practice according to their textbook, which reinforces classroom teaching and helps in systematic learning.

Practice and Application: The solutions offer a variety of problems, from basic to advanced, allowing students to practice and apply what they have learned. This enhances problem-solving skills and prepares them for exams.

Quick Reference: They serve as a quick reference guide for students to check their answers and understand where they might have gone wrong, aiding in self-assessment and correction.

Foundation for Advanced Topics: By mastering coordinate geometry at this level, students build a strong foundation for more advanced topics in higher classes, such as conic sections and analytical geometry.

Boosts Confidence: With comprehensive solutions, students gain confidence in tackling coordinate geometry problems, which can improve their overall performance in mathematics.