BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI – 110034

SUBJECT:- MATHEMATICS

CHAPTER:- 3 (PART- 2)

TOPIC:- COORDINATE GEOMETRY

GUIDELINES

Dear Students
Kindly read the content given below and view the links shared for better understanding.

- **Solve the given questions in the yellow register provided in the notebook set.**

Link for the chapter : http://ncert.nic.in/textbook/textbook.htm?jemh1=3-15

Introduction and explanation of Coordinate Geometry

Let us Recall the following

1. The position of the point is located on a plane by drawing two lines perpendicular to each other.

2. The horizontal line is called x-axis and the vertical line is called y-axis .

3. The plane is called the cartesian or coordinate plane and the mutually perpendicular lines are called axes.

4. The x- coordinate of a point is called abscissa.

5. The y-coordinate of a point is called the ordinate.

6. The abscissa of every point is 0 on the y-axis and the ordinate of every point is 0 on the x-axis.

7. The coordinates of the origin are (0,0).

8. Both the axes divide the plane in four quadrants.

9. The points of the type lies in: **(+, +)** in **Quadrant I,**
(−, +) in **Quadrant II**
(−, −) in **Quadrant II**
(+ ,−) in **Quadrant IV**

10. The position of a point in a plane is determined with reference to two fixed mutually perpendicular lines, called the coordinate axes. The horizontal line called the x-axis and vertical line is called the y-axis.

11.   We can represent a point in plane (called a cartesian plane or a coordinate plane) by means of an ordered pair of real numbers, called the coordinates of that point. The branch of mathematics in which geometrical problems are solved using coordinate systems in known as **Coordinate Geometry.**
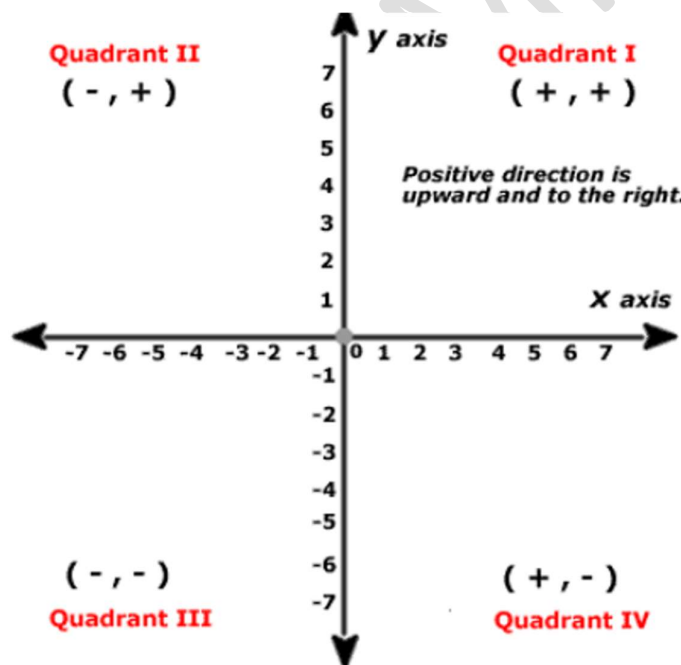
Subtopics :

How do you graph a decimal on a coordinate graph?

The coordinates in an ordered pair can be any real number. This means that not only can they be positive or negative, but they can also be fractions or decimals. Even in this case, the same general idea applies.

But, depending on the decimal or fraction, you might have to change the scale of both the axes so that the number is clearly visible on the graph.

When plotting **decimal** numbers, it is good to remember that a **decimal** is just a part of a whole number. For example, 0.5 is half of 1. Therefore, if you were to **plot** 0.5 you would draw a dot halfway between 0 and 1.For representing decimals on a cartesian plane we choose an appropriate scale so that the position of the point is clearly visible.

Points in decimals or fractions on a cartesian plane:
https://youtu.be/XeDBjG9PIro

How to find Co-ordinates of plotted points :
https://examfear.com/free-video-lesson/Class-9/Maths/Coordinate-Geometry/part-5/Coordinate_Geometry_Part_5_(Find_coordinates_for_plotted_points).htm

EXAMPLE 1:

How to plot A (3.5 , 4) on a coordinate graph?


Points on the coordinate plane are notated as (x , y) where
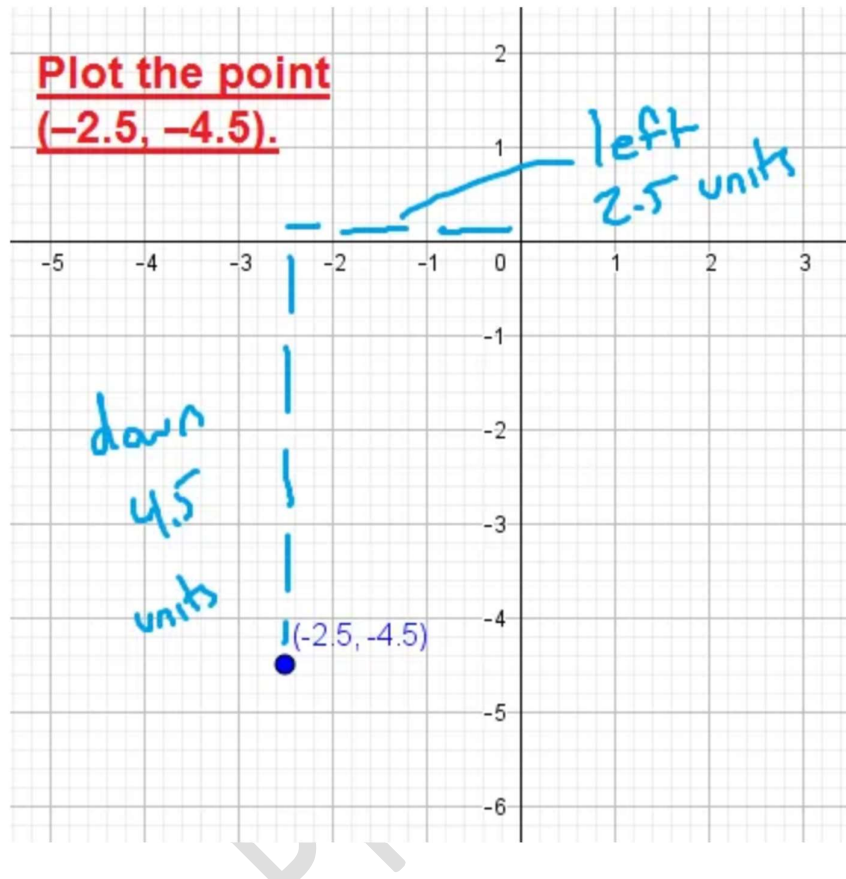 x is the position on the x-axis or horizontal axis
 y is the position on the y-axis or vertical axis

Firstly, because the x value for point A is 3.5 and is positive, we go 3.5 units to the right on the x or horizontal axis starting from the origin.
Next, because the y value for point A is 4 and is positive, we go 4 units up on the y or vertical axis:
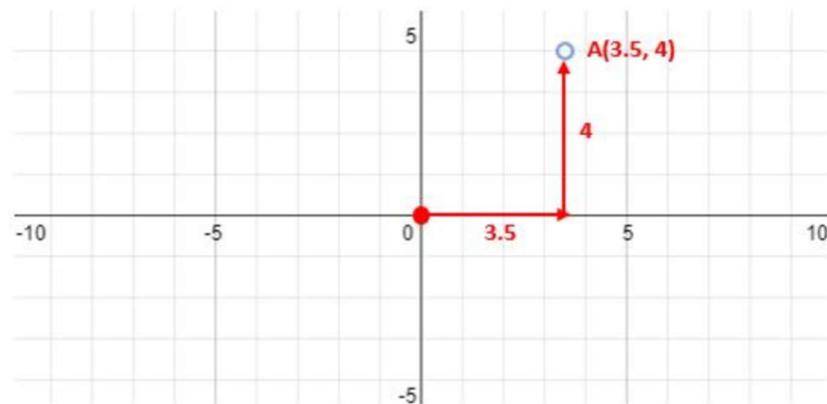
EXAMPLE 2

In a similar manner we can plot the numbers with fractions on a cartesian plane.

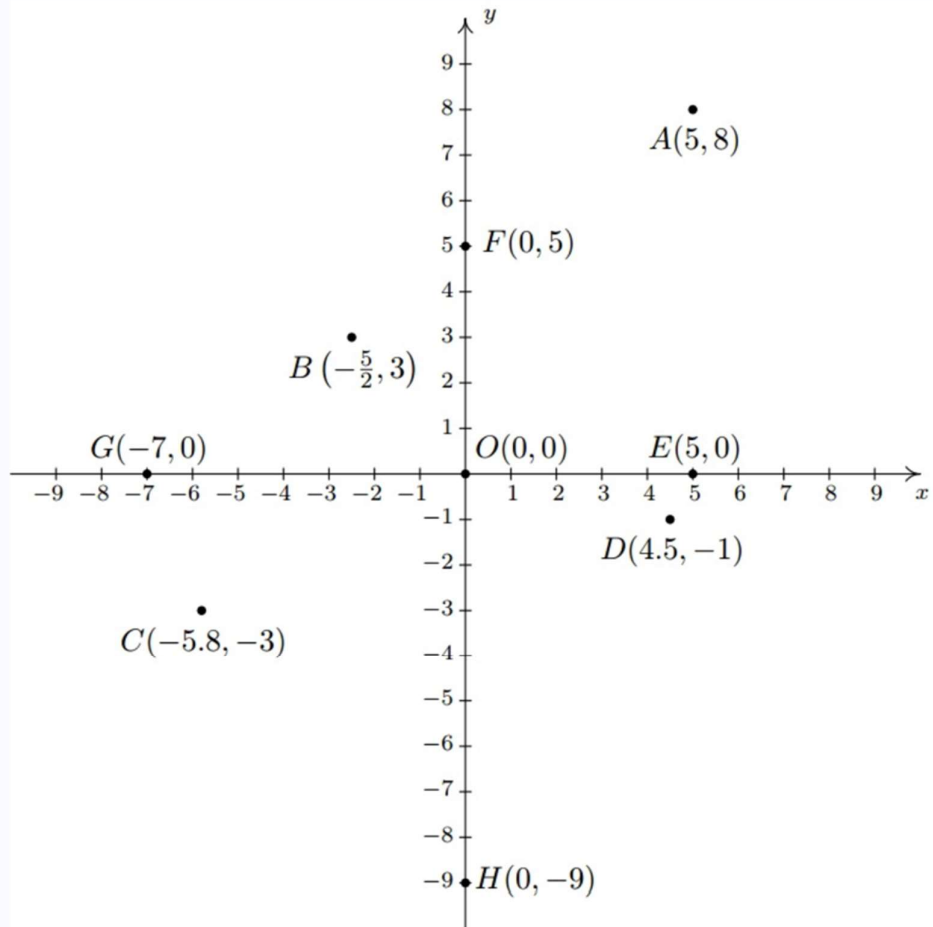Points in fractions   https://youtu.be/G4brE5RMJ-c

In both the above cases we can choose an appropriate scale to represent the numbers.

EXAMPLE 3:

Plot the following points in a cartesian plane:

A(5,8), B(−5/2,3), C(−5.8,−3), D(4.5,−1), E(5,0), F(0,5), G(−7,0), H(0,−9) and O(0,0).

For this example we can choose a scale of 1cm = 1 unit and then can plot these points

A coordinate plane showing the following points:
- $A(5, 8)$
- $F(0, 5)$
- $B\left(-\frac{5}{2}, 3\right)$
- $G(-7, 0)$
- $O(0, 0)$
- $E(5, 0)$
- $D(4.5, -1)$
- $C(-5.8, -3)$
- $H(0, -9)$

ASSIGNMENT :-

To be done in the **yellow register**
1. Solved example 3 and 4 of NCERT .
2. Exercise 3.3 Question 2.

QUESTIONS FOR PRACTICE

Note : Following questions are for the practice only and should be done in a separate practice register/copy of mathematics .

MCQs

1. If the perpendicular distance of a point P from the *x*-axis is 7 units and the foot of the perpendicular lies on the negative direction of *x*-axis, then the point P has:

a) *y*-coordinate = 7 or –7 only   b) *y*-coordinate = 7 only

c) *y*-coordinate = –7 only   d) *x*-coordinate = –7

2. On plotting P (–3.5, 8), Q (7.25, –5), R (–3, –8.2) and T (–7, 9) are plotted on the graph paper, then point(s) in the third quadrant are:

a) P and T   b) Q and R   c) Only R   d) P and R

3. If the coordinates of the two points are P (–7.5, 5) and Q (–6, 9),
then (abscissa of P) – (abscissa of Q) is:

a) –3   b) 1   c) –2   d) –1

4. Abscissa of a point is positive in:

a) I and II quadrants   b) I and IV quadrants

c) I quadrant only   d) II quadrant only

5. The point whose ordinate is 8.5 and lies on *y*-axis:

a) (0, 8.5)   b) (8.5, 0)   c) (5, 8.5)   d) (8.5, 5)

SHORT AND LONG ANSWER QUESTIONS

1.Plot the points (x, y) given by the following table:

X	2.5	1.5	-1.25	0
Y	-1	0.5	1	1.25

2.Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively-one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the third quadrant.