Important Questions Class 9 Maths Chapter 3 – Coordinate Geometry

1 Marks Questions

1. The point of intersection of X and Y axes is called

(a) zero point

(b) origin

(c) null point

(d) none of these

Ans. (b) origin

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2. The distance of the point (-3, -2) from x-axis is

(a) 2 units

(b) 3 units

(c) 5 units

(d) $\sqrt{13}$ **units**

Ans. (a) 2 units

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3. The distance of the point (-6, -2) from y-axis is

(a) 6 units

(b) $\sqrt{38}$ **units**

(c) 2 units

(d) 8 units

Ans. (a) 6 units

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4. The abscissa and ordinate of the point with Co-ordinates (8, 12) is

(a) abscissa 12 and ordinate 8

(b) abscissa 8 and ordinate 12

(c) abscissa 0 and ordinate 20

(d) none of these

Ans. (a) abscissa 12 and ordinate 8

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5. The co-ordinate of origin in

(a) (X, 0)

(b) (0, y)

(c) (0, 0)

(d) none of these.

Ans. (c) (0, 0)

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6. The distance of the point (2,3) from y axis's

(A) 2 units

(B) 3 units

(C) 5 units

(D) $\sqrt{13}$ **units**

Ans. (A) 2 units

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7. The point (-2, -1) lies in

(A) 1st quadrant

(B) 2nd quadrant

(C) 3rd quadrant

(D) 4th quadrant

Ans. (C) 3rd quadrant

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8. The point (3,0) lies on

(A) +ve x axis

(B) – ve x axis

(C) + ve y axis

(D) –ve y axis

Ans. (A) +ve x axis

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9. The distance of the point (3, 5) from x- axis is

(a) 3 units

(b) 4 units

(c) 5 units

(d) 6 units

Ans. (c) 5 units

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10. The point (0, -5) lies on

(a) +ve x- axis

(b) +ve y- axis

(c) –ve x- axis

(d) –ve y-axis

Ans. (d) –ve y-axis

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11. The point (-2, 5) lies in

(a) 1st quadrant

(b) 2nd quadrant

(c) 3rd quadrant

(d) 4th quadrant

Ans. (b) 2nd quadrant.

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12. The distance of the point (3, 0) from x- axis is

(a) 3 units

(b) 0 units

(c) 9 units

(d) none of these

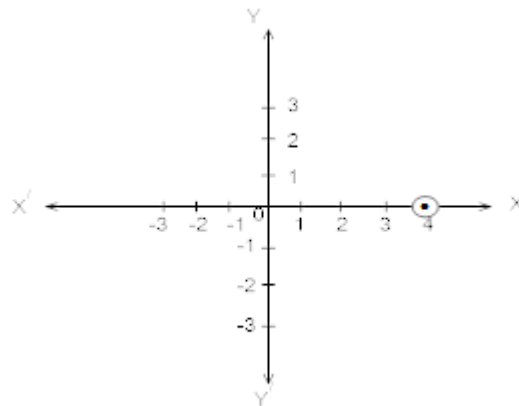**Ans. (a)** 3 units.

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2 Marks Questions

1. Write the name of each part of the plane formed by Vertical and horizontal lines.

Ans. (i) Vertical line is called y-axis.

(ii) Horizontal line is called x-axis.

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2. Write the Co-ordinates of a point which lies on the x-axis and is at a distance of 4units to the right of origin. Draw its graph.

Ans. (4, 0)

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3. Write the mirror image of the point (2, 3) and (-4, -6) with respect to x-axis.

Ans. (i) The mirror image of point (2, 3) is (2, -3) with respect to x-axis.

(ii) The mirror image of (-4, -6) is (-4,6) with respect to x-axis.

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4. Write the Co-ordinates of a point which lies on y-axis and is at a distance of 3units above x-axis. Represent on the graph.

Ans. The Co-ordinates of the point which lies on y-axis and at a distance of 3units above x-axis is (0, 3).

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5. Write abscissa and ordinate of point (-3, -4)

Ans. Abscissa -3 ordinate -4

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6. State the quadrant in which each of the following points lie:

(i) (2, 1)

(ii) (-7,11)

(iii) (-6, -4)

(iv) (-5, -5)

Ans. (2, 1) (i) Quadrant

(-7, 11) (ii) Quadrant

(-6, -4) (iii) Quadrant

(-5, -5) (iii) Quadrant

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7. Which of the following points belongs to 2nd quadrant

(i) (2,3)

(ii) (-3,2)

(iii) (2,0)

(iv) (-4,2)

Ans. The points (-3, 2), (-4, 2) belongs to (ii) quadrant.

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8. What is the name of horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane?

Ans. The name of horizontal line is x –axis
The name of vertical line is y – axis

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9. Name the points of the plane which do not belong to any of the quadrants.

Ans. The points in a plane which do not belong to any one of the quadrants are (0, 0).

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10. Which of the following points belong to the x- axis?

(a) (2, 0) (b) (3, 3) (c) (0, 1) (d) (-2, 0)

Ans. (2, 0) and (-2, 0) belongs to x- axis.

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11. Which of the following points belongs to 1st quadrant

(a) (3, 0) (b) (1, 2) (c) (-3, 4) (d) (3, 4)

Ans. (1, 2) and (3, 4) belongs to 1st quadrant.

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12. Which of the following points belongs to 3rd quadrant

(a) (1, 3) (b) (-1, -3) (c) (0, 4) (d) (-4, -2)

Ans. (-1, -3) and (-4, -2) belongs to 3rd quadrant.

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3 Marks Questions

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

Ans. Let us consider the given below figure of a study stable, on which a study lamp is placed.
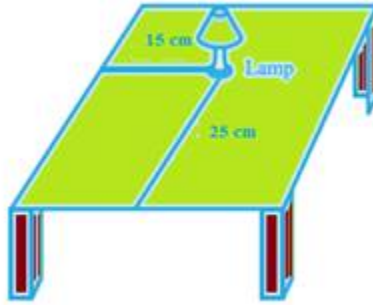
Let us consider the lamp on the table as a point and the table as a plane. From the figure, we can conclude that the table is rectangular in shape, when observed from the top. The table has a short edge and a long edge.

Let us measure the distance of the lamp from the shorter edge and the longer edge. Let us assume that the distance of the lamp from the shorter edge is 15 cm and from the longer edge, its 25 cm.

Therefore, we can conclude that the position of the lamp on the table can be described in two ways depending on the order of the axes as

$$(15,25) \quad \text{or} \quad (25,15)$$

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2. Write the answer of each of the following questions:

(i) What is the name of horizontal and the 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.**

Ans.

(i) The horizontal line that is drawn to determine the position of any point in the Cartesian plane is called as *x*-axis.

The vertical line that is drawn to determine the position of any point in the Cartesian plane is called as *y*-axis.
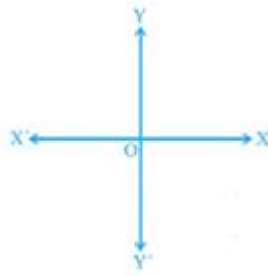
(ii) The name of each part of the plane that is formed by *x*-axis and *y*-axis is called as quadrant.
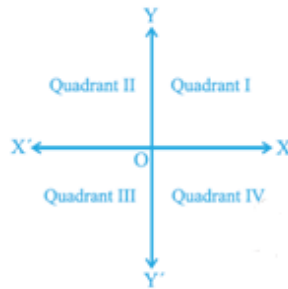
(iii) The point, where the *x*-axis and the *y*-axis intersect is called as origin.

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3. 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.

Ans. We need to determine the quadrant or axis of the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5). First, we need to plot the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5) on the graph, to get
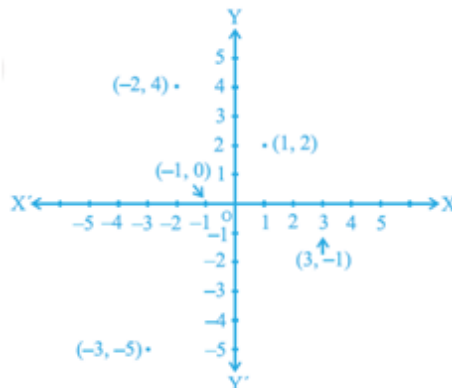
We need to determine the quadrant, in which the points (– 2, 4), (3, – 1), (– 1, 0), (1, 2) and (– 3, – 5) lie.

From the figure, we can conclude that the point (– 2, 4) lie in IInd quadrant.

From the figure, we can conclude that the point (3, − 1) lie in IVth quadrant.

From the figure, we can conclude that the point (−1, 0) lie on *x*-axis.

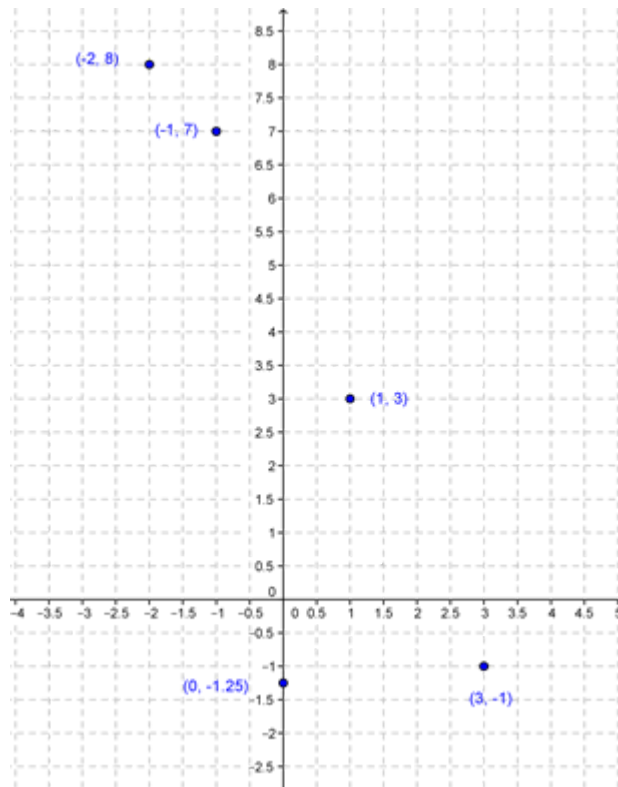From the figure, we can conclude that the point (1, 2) lie in Ist quadrant.

From the figure, we can conclude that the point (− 3, − 5) lie in IIIrd quadrant.

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4. Plot the points (*x, y*) given in the following table on the plane, choosing suitable units of distance on the axes.
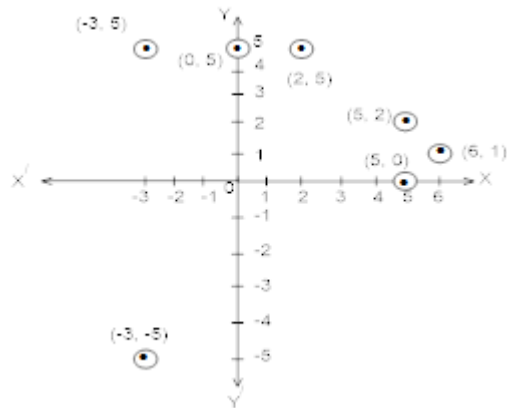
X	−2	−1	0	1	3
y	8	7	−1.25	3	−1

Ans. We need to plot the given below points on the graph by using a suitable scale.

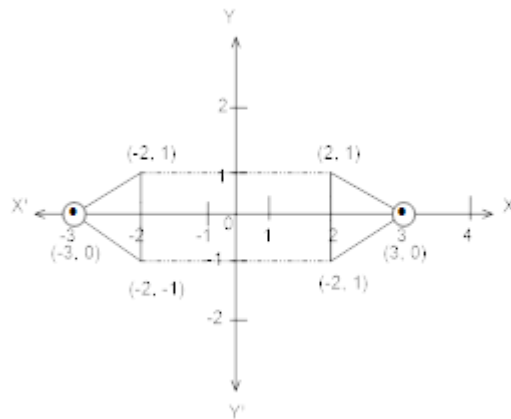| X	−2	−1	0	1	3
y	8	7	−1.25	3	−1

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5. Locate the points (5, 0), (0, 5), (2, 5), (5, 2), (-3, 5), (-3, -5) and (6, 1) in the Cartesian plane.
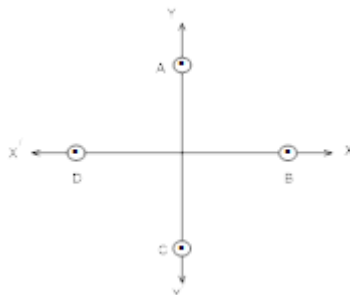
Ans.

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6. Take a triangle ABC with A (3, 0), B (-2, 1), C (2, 1). Find its mirror image.

Ans. Mirror image of A (3, 0), B (-2, 1) and (2, 1) are A' (-3, 0), B' (-2, -1), C' (2, -1) respectively.

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7. In fig. write the Co-ordinates of the points and if we join the points write the name of fig. formed. Also write Co-ordinate of intersection point of AC and BD. (3)

Ans. (i) The Co-ordinate of point A is (0, 2), B is (2, 0), C is (0, -2) and D is (-2, 0).

(ii) It we joined them we get square.

(iii) Co-ordinate of intersection point of AC and BD is (0, 0).

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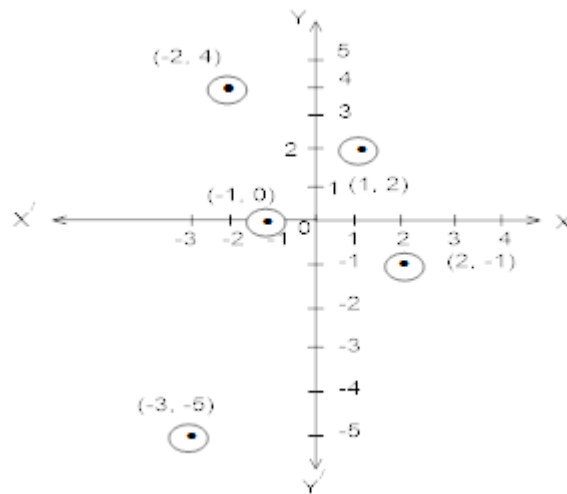
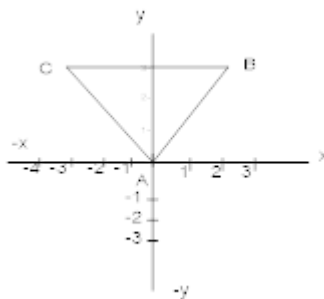**Ans.** (-2, 4) lies in II quadrant.

(2, -1) lies in IV quadrant.

(-1, 0) lies on –ve x-axis.

(1, 2) lies in I quadrant.

(-3, -5) lies in III quadrant.

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9. In fig of vertices find co-ordinates of $\triangle ABC$

Ans. (A) (0, 0) (B) (2, 3) (c) (-2, 3)

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10. Take a quadrilateral ABCD

(A) (-5, -4) (B) (-5, 2) (C) (-3, 3) and (D) (-3, 4) find its mirror image with respect to y-axis.
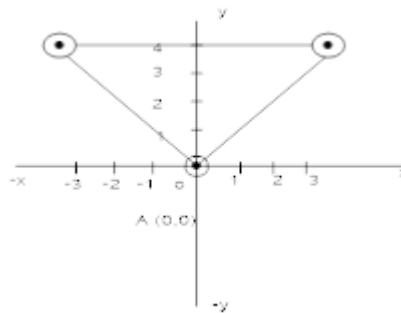
Ans. The mirror image of point.

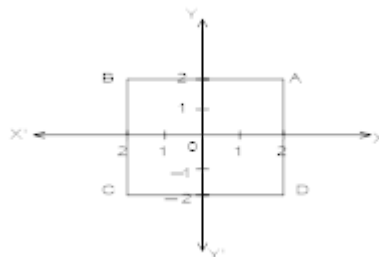(A) (-5, 4) (B) (-5, 2) (C) (-3, 3) and (D) (-3, 4) with respect to y-axis are.

A' (5, 4), B' (5, 2), C' (3, 3) and D' (3, 4)

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11. Locate the points (A) (-3, 4) (B) (3, 4) and (C) (0, 0) in a Cartesian plane write the name of figure which is formed by joining them.

Ans.

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12. Find Co-ordinates of vertices of rectangle ABCD

Ans. The co- ordinates of vertices of rectangle A (2, 2), B (-2, 2), C (-2, -2) and D (2, -2).

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13. Take a rectangle ABCD with A (-6, 4), B (-6, 2), C (-2, 2) and D (-2, 4). Find its mirror image with respect to x- axis.
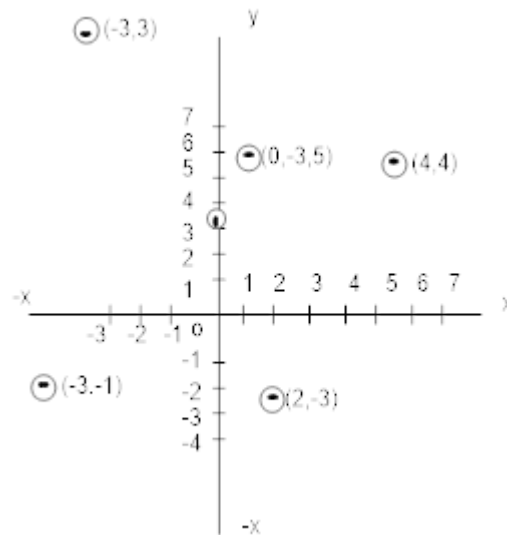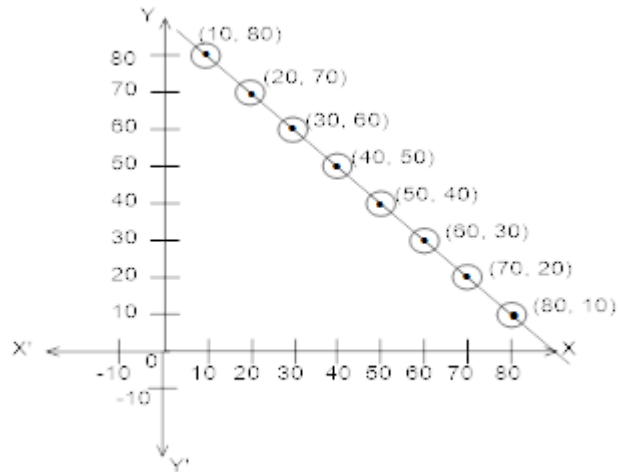
Ans. The mirror image of A (-6, 4) is A' (-6, -4) and B (-6, 2) is B' (-6, -2), C (-2, 2) is C' (-2, -2) and D (-2, 4) is D' (-2, -4)

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14. The following table gives measures (in degrees) of two acute angles of a right triangle

X	10	20	30	40	50	60	70	80
Y	80	70	60	50	40	30	20	10

Plot the point and join them.

Ans.

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15. Plot each of the following points in the Cartesian Plane

(a) (3, 4)

(b) (-3, -4)

(c) (0, -5)

(d) (2, -5)

(e) (2, 0) (3)

Ans.

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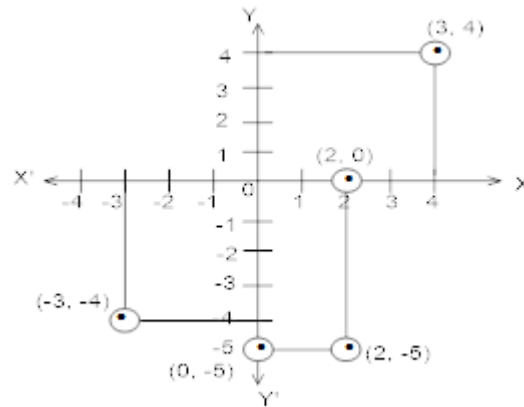
4 Marks Questions

1. (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 on 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:
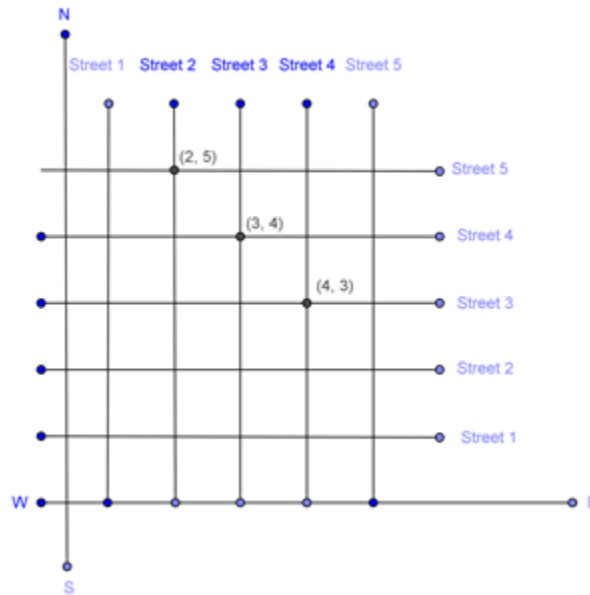
(i) how many cross - streets can be referred to as (4, 3).

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

Ans. We need to draw two perpendicular lines as the two main roads of the city that cross each other at the center and let us mark it as N-S and E-W.

Let us take the scale as 1 cm = 200m.

We need to draw five streets that are parallel to both the main roads, to get the given below figure.

(i) From the figure, we can conclude that only one point have the coordinates as $(4,3)$.

Therefore, we can conclude that only one cross - street can be referred to as (4, 3).

(ii) From the figure, we can conclude that only one point have the coordinates as $(3,4)$.

Therefore, we can conclude that only one cross - street can be referred to as (3, 4).

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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.
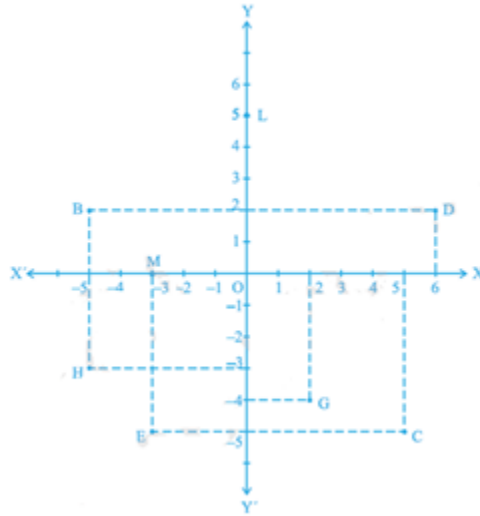
Ans. We need to consider the given below figure to answer the following questions.

(i) The coordinates of point *B* in the above figure is the distance of point *B* from *x*-axis and *y*-axis. Therefore, we can conclude that the coordinates of point *B* are (—5, 2).

(ii) The coordinates of point *C* in the above figure is the distance of point *C* from *x*-axis and *y*-axis. Therefore, we can conclude that the coordinates of point *C* are (5, —5).

(iii) The point that represents the coordinates (—3, —5) is *E*.

(iv) The point that represents the coordinates (2, —4) is *G*.

(v) The abscissa of point *D* in the above figure is the distance of point *D* from the *y*-axis. Therefore, we can conclude that the abscissa of point *D* is 6.

(vi) The ordinate of point *H* in the above figure is the distance of point *H* from the *x*-axis. Therefore, we can conclude that the abscissa of point *H* is —3.

(vii) The coordinates of point *L* in the above figure is the distance of point *L* from *x*-axis and *y*-axis. Therefore, we can conclude that the coordinates of point *L* are (0, 5).

(viii) The coordinates of point *M* in the above figure is the distance of point *M* from *x*-axis and *y*-axis. Therefore, we can conclude that the coordinates of point *M* are (—3, 0).

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5 Marks Questions

1. See fig. and write the following

(i) The Co-ordinates of B

(ii)The Co-ordinates of C

(iii) On which axis point L lies.

(iv) The abscissa of the point D
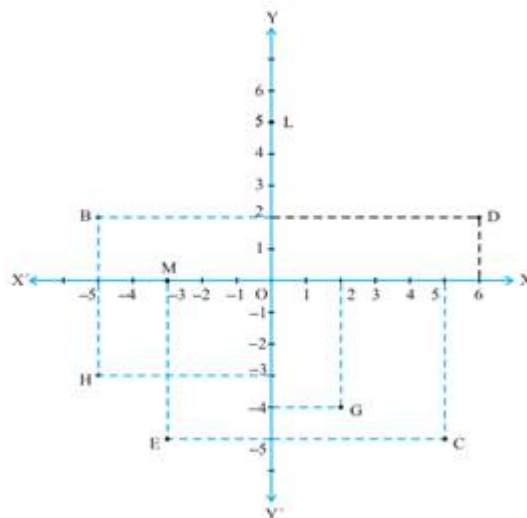
(v)The Co-ordinates of point L

(vi) On which axis point M lies.

(vii)The ordinate of the point H

(Viii) The Co-ordinates of the point M

(ix)The point identified by the Co-ordinate (2, -4)

(x)The point identified by the Co-ordinates (-3, -5)

Ans. (i) (-5, 2)

(ii) (5, -5)

(iii)Y-axis.

(iv) The abscissa of point D is 6.

(v) (0, 5)

(vi) Point M lies on X-axis.

(vii) The ordinate of point H is -3

(viii) (-3, 0)

(ix) G

(x) E

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2. Find some ordered pairs of the linear equation 2x+y=4 and plot them 'how many such ordered pairs can be found and plotted?

Ans. Solution the given equation is 2x+y=4
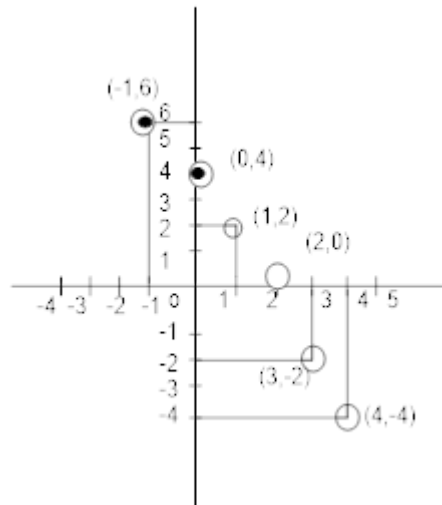
When x=0y=4 i.e. (0, 4)

When x=1y=2 i.e. (1, 2)

When x=2 y=0 i.e. (2, 0)

When x=3 y = -2i.e. (3, -2)

Some more ordered pairs satisfying the equation 2x+y=4 are given by

(4, -1) '(-1, 6) (-3, 10) --------

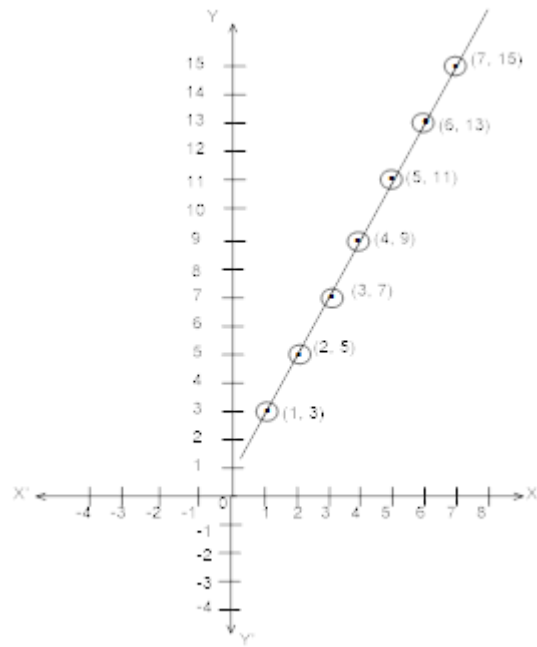By plotting the points in the Cartesian plane.

Thus an infinite number of ordered pairs can be found and plotted.

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3. The following table given the relation between natural numbers and odd natural numbers

X	1	2	3	4	5	6	7
Y	3	5	7	9	11	13	15

Plot the points and join them. Do you get a straight line by joining these points?

Ans.

Yes, we get a straight line by joining them