

**Important Questions for Class 9**  
**Maths**  
**Chapter 3 - Coordinate Geometry**

**Section - A**

**1. On which axes do the given points lie?**

**i. (7, 0)**

**Ans:** (7,0) X-axis since the y component is zero

**ii. (0, -3)**

**Ans:** (0, -3) Y-axis since the x component is zero

**iii. (0, 6)**

**Ans:** (0,6) Y-axis since the x component is zero

**iv. (-5, 0)**

**Ans:** (-5,0) X-axis since the y component is zero

**2. In which quadrants do the given points lie?**

**i. (4, -2)**

**Ans:** (4,-2) IV quadrant since the x component is positive and y component is negative.

**ii. (-3, 7)**

**Ans:** (-3,7) II quadrant since the x component is negative and y component is positive.

**iii. (-1, -2)**

**Ans:** (-1,-2) III quadrant since the x component is negative and y component is negative.

**iv. (3, 6)**

**Ans:** (3,6) I quadrant. since the x component is positive and y component is positive.

**3. Do P (3, 2) & Q(2, 3) represent the same point?**

**Ans:** P(3,2) and Q(2,3) do not represent same point. The first one has the x component is 3 and y is two, while Q has the x component as 2 and y component is 3.

**4. In which quadrant points P(3,0), Q(6,0) , R (-7,0), S (0,-6), lie?**

**Ans:** These points do not lie in any quadrant. These points lie on the axes.

**5. If  $a < 0$  and  $b < 0$ , then the point P(a,b) lies in**

- a) quadrant IV
- b) quadrant II
- c) quadrant III
- d) quadrant I

**Ans:** (c) quadrant III

**6. The points (other than the origin) for which the abscissa is equal to the ordinate lie in**

- a) Quadrant I only**
- b) Quadrant I and II**
- c) Quadrant I & III**
- d) Quadrant II only.**

**Ans:** (c) quadrant I & III.

In III and I quadrants, the axes have same sign.

**7. The perpendicular distance of the point P(4,3) from the y axis is**

- a) 3 Units**
- b) 4 Units**
- c) 5 Units**
- d) 7 Units**

**Ans:** (a) 3 units

Distance from Y axis is the x coordinate of the point.

**8. The area of triangle OAB with  $O(0,0)$ ,  $A(4,0)$  &  $B(0,6)$  is**

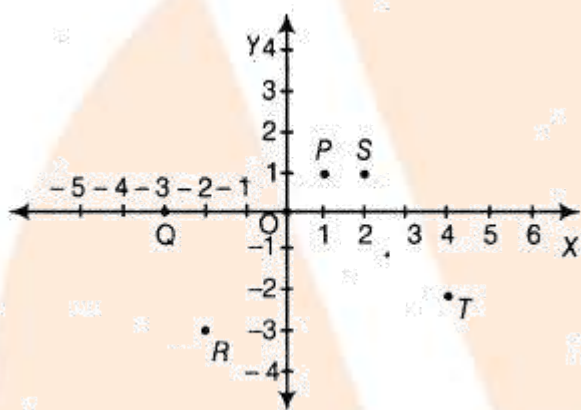
- a) 8 sq. unit**
- b) 12 sq. units**
- c) 16 sq. units**
- d) 24 sq. units**

**Ans:** (b) 12 sq. units.

Area is half of the product of base and height of the triangle.

### Section - B

9. Write down the coordinates of each of the points P, Q, R, S and T as shown in the following figure?



**Ans:**

P (1,1)

Q (-3,0)

R (-2,-3)

S (2,1)

T (4,-2)

10. Draw the lines X'OX and YOY as the axes on the plane of a paper and plot the given points.

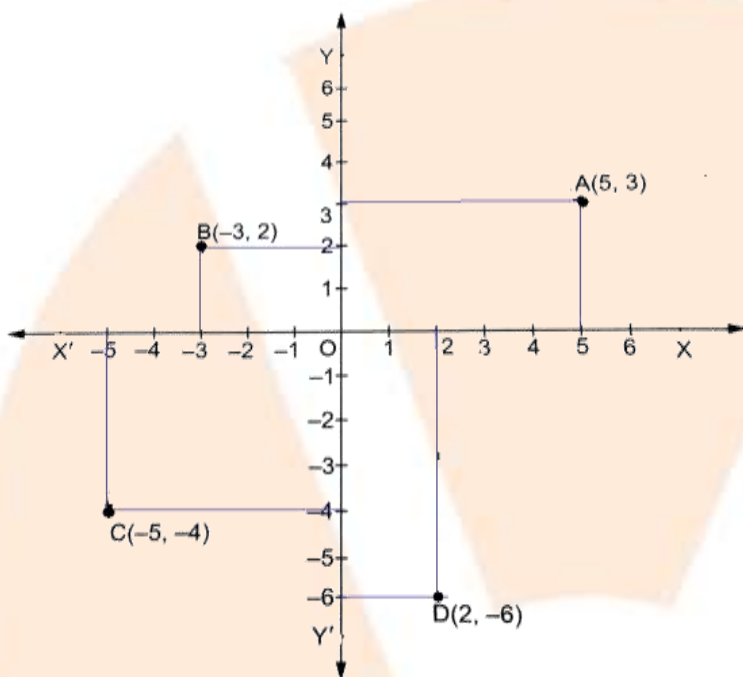
i. A (5,3)

ii. B (-3, 2)

iii.  $C(-5, -4)$

iv.  $D(2, -6)$

Ans:



### Section - C

11. Find the mirror images of the following point using x-axis & y-axis as mirror.

i. A (2,3)

Ans:  $A' (2, -3)$ ,

ii. B( 2,-3)

Ans:  $B' (2,3)$

iii. C (-2,3)

Ans: C' (-2,-3),

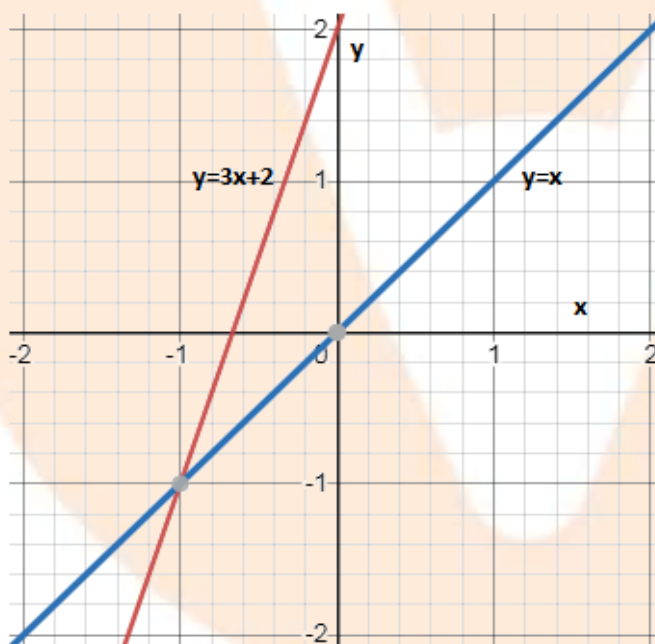
iv. D (-2,-3)

Ans: D' (-2,3)

12. Draw the graph of the following equations

i.  $y = 3x + 2$

ii.  $y = x$



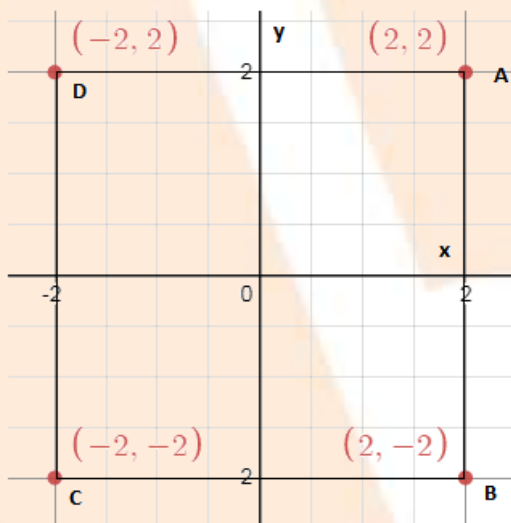
13. Draw a triangle with vertices O(0,0) A(3,0) B(3,4). Classify the triangle and also find its area.

**Ans:** The points from a right angle triangle

The area of the triangle is half of the product of the base and height i.e. 6 square units.

**14. Draw a quadrilateral with vertices A(2,2) B(2,-2) C(-2,-2), D(-2,2). Classify the quadrilateral and also find its area.**

**Ans:**



This quadrilateral is square of area =16 square units.

**15. Find the coordinates of point which are equidistant from these two points P (3,0) and Q (-3,0). How many points are possible satisfying this condition?**

**Ans:** All the point on the Y-axis satisfy this condition.

### Very Short Answer Questions

**1 Mark**

**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

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

- (a) 2 units
- (b) 3 units
- (c) 5 units
- (d) 13 units

**Ans:** (a) 2 units

Distance from x axis is the magnitude/absolute value of the y coordinate of the point.

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

- (a) 6 units
- (b) 10 units
- (c) 2 units
- (d) 8 units

**Ans:** (a) 6 units

Distance from y axis is the magnitude/absolute value of the x coordinate of the point.



**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

Abscissa is the y coordinate of the point and the ordinate is the x coordinate value.

**5. The co-ordinate of origin in**

- (a) (X, 0)**
- (b) (0, y)**
- (c) (0, 0)**
- (d) none of these.**

**Ans:** (c) (0, 0)

For the origin, both abscissa and ordinate are 0.

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

- (A) 2 units**
- (B) 3 units**
- (C) 5 units**
- (D) 13 units**

**Ans:** (A) 2 units

Distance from x axis is the magnitude/absolute value of the y coordinate of the point. And the distance from y axis is the magnitude/absolute value of the x coordinate of the point.

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

- (A) 1st quadrant**
- (B) 2nd quadrant**
- (C) 3rd quadrant**
- (D) 4th quadrant**

**Ans:** (C) 3rd quadrant

3<sup>rd</sup> quadrant corresponds to both negative x and y values.

**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

Since the y coordinate is zero and x-coordinate is positive.

**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

Distance from x axis is the magnitude/absolute value of the y coordinate of the point. And the distance from y axis is the magnitude/absolute value of the x coordinate of the point.

**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

Since the x-coordinate is zero and y is negative.

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

- (a) 1st quadrant**
- (b) 2nd quadrant**
- (c) 3rd quadrant**
- (d) 4th quadrant**

**Ans:** (b) 2nd quadrant.

In second quadrant, the x-values are negative and y are positive.

**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.

Distance from x axis is the magnitude/absolute value of the y coordinate of the point. And the distance from y axis is the magnitude/absolute value of the x coordinate of the point.

## Short Answer Questions

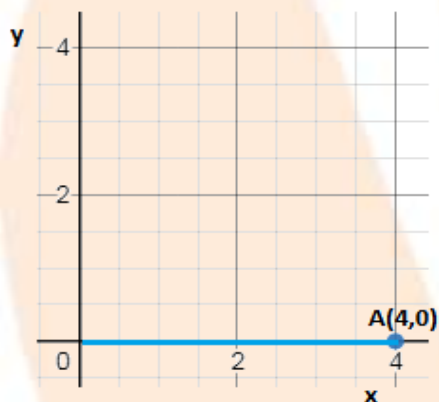
2 Marks

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

**Ans:** Vertical line is called y-axis, the horizontal line is called x-axis. And these form four quadrants.

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

**Ans:** (4, 0)



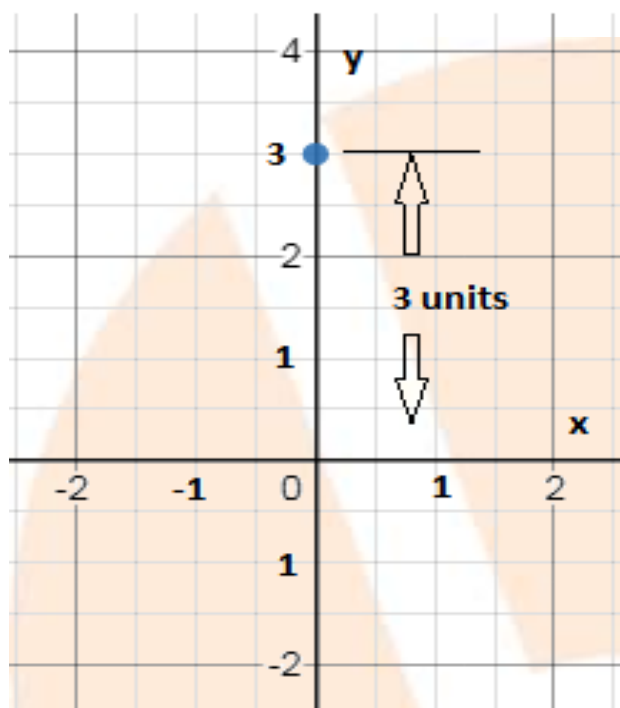
3. Write the mirror image of the point (2, 3) and (-4, -6) with respect to x-axis.

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

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

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

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



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

**Ans:** Abscissa -3 ordinate -4

**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

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

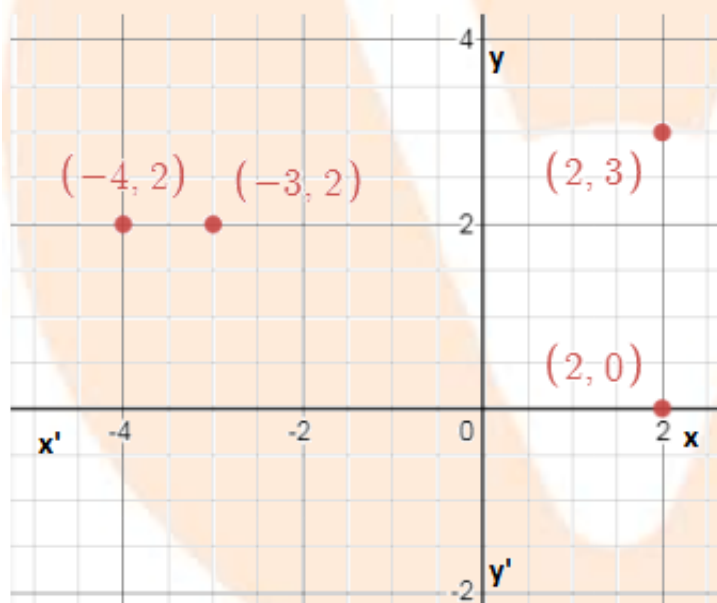
(i)  $(2,3)$

(ii)  $(-3,2)$

(iii)  $(2,0)$

(iv)  $(-4,2)$

**Ans:** The points  $(-3, 2)$ ,  $(-4, 2)$  belongs to 2<sup>nd</sup> quadrant.



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

**Ans:** The horizontal line is called x –axis and the name of vertical line is y – axis.

**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 is origin which is denoted by O (0,0).

**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.

To belong on the y axis the y-component should be zero.

**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.

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

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

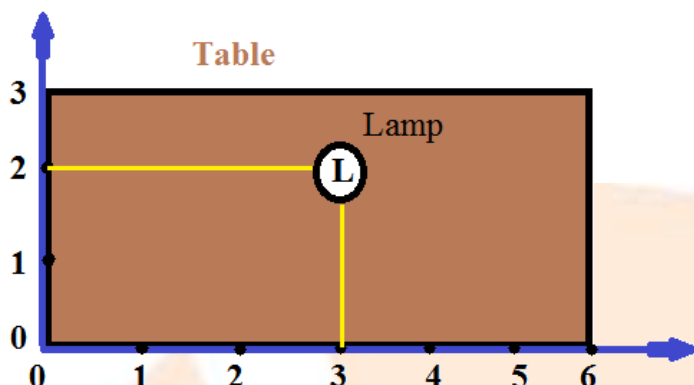
**Ans:** (-1, -3) and (-4, -2) belongs to 3rd quadrant.

### Short Answer Questions

**3 Marks**

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

**Ans:**



Consider the figure of a study tabletop, on which a lamp (L) is placed.

Consider the lamp on the table as a point and the table as a plane.

Choose one of the corners as the Origin-O (0,0). 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 2.5m and from the longer edge, its 2m.

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 (2.5,2).

## 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?

**Ans:** The horizontal line that is drawn to determine the position of any point in the Cartesian plane is named as x-axis and the vertical line is called the y-axis.

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

**Ans:** The name of each part of the plane that is formed by x-axis and y-axis is called as quadrant.



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

**Ans:** The point, where the x-axis and the y-axis intersect is called as origin denoted by O (0,0).

**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:** The point  $(-2, 4)$  lies in II quadrant;

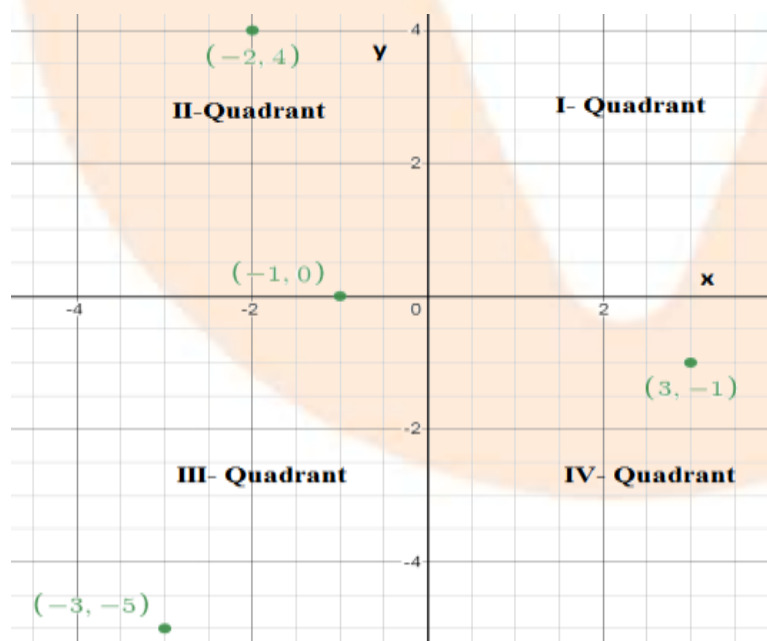
the point  $(3, -1)$  lies in IV quadrant;

the point  $(-2, 4)$  lies in II quadrant;

the point  $(3, -1)$  lies in IV quadrant and

the point  $(-1, 0)$  lies on x-axis.

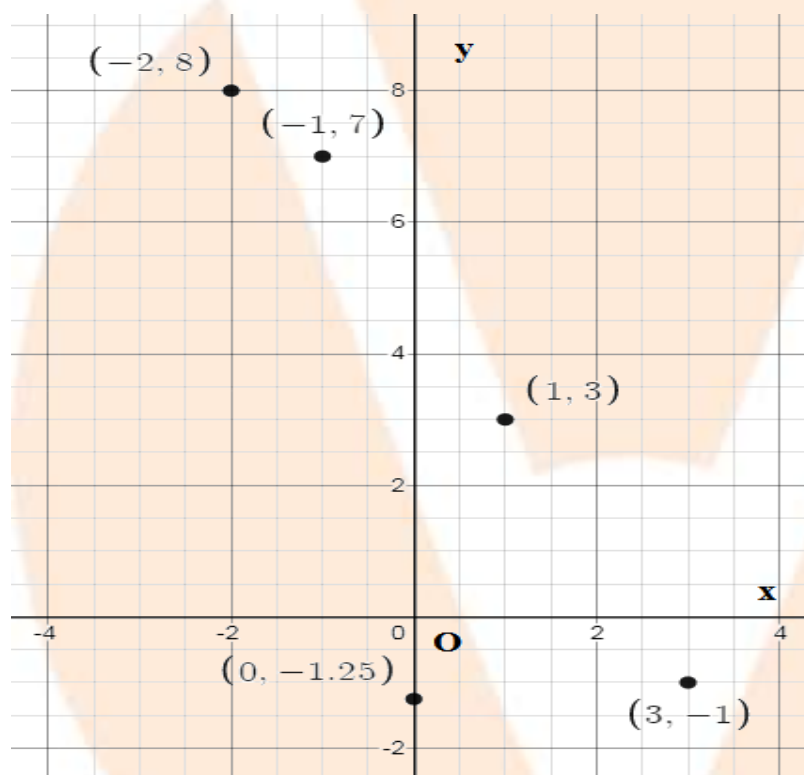
These can be verified from the figure below.



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

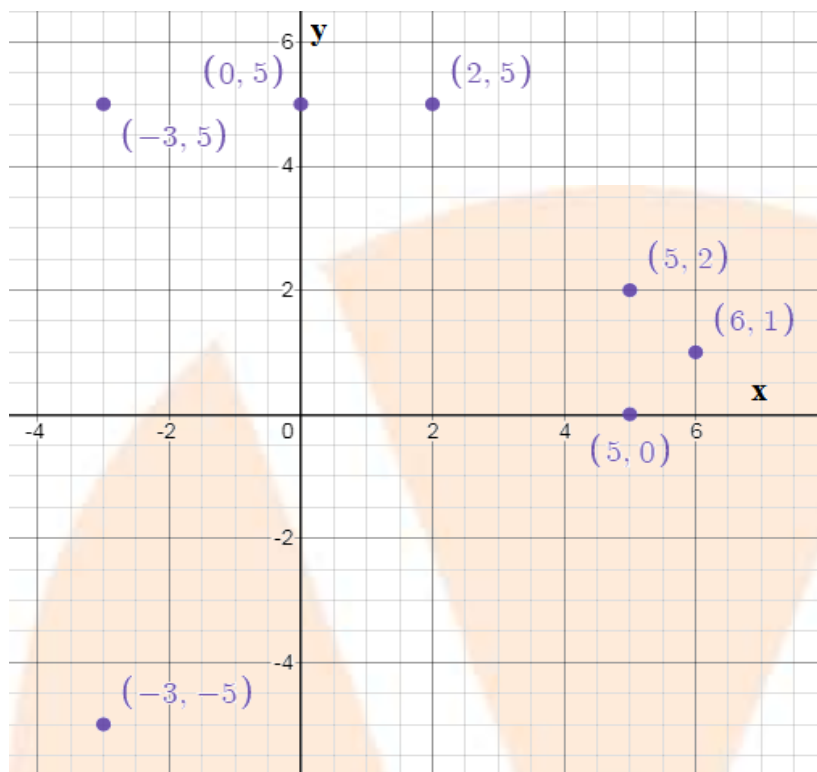
x	-2	-1	0	1	3
y	8	7	-1.25	3	-1

Ans:



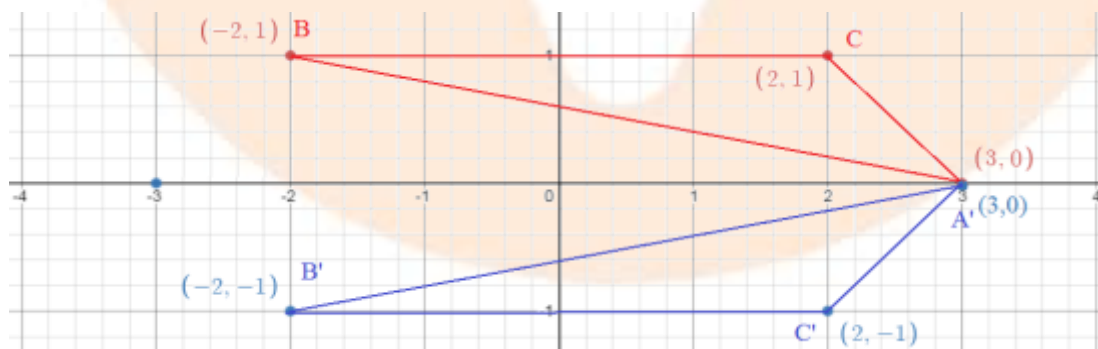
5. Locate the points  $(5, 0)$ ,  $(0, 5)$ ,  $(2, 5)$ ,  $(5, 2)$ ,  $(-3, 5)$ ,  $(-3, -5)$  and  $(6, 1)$  in the Cartesian plane.

Ans:

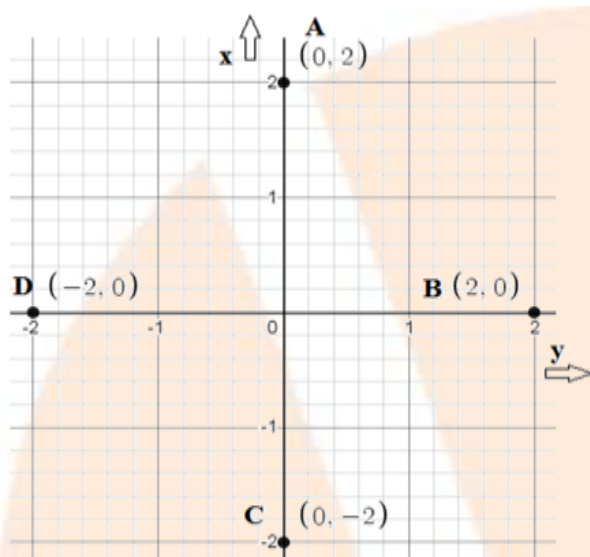


**6. Take a triangle ABC with A (3, 0), B (-2, 1), C (2, 1). Find its mirror image.**

**Ans:** Mirror images of A (3, 0), B (-2, 1) and C (2, 1) about the x-axis are A' (3, 0), B'(-2,-1), C'(2,-1) respectively.



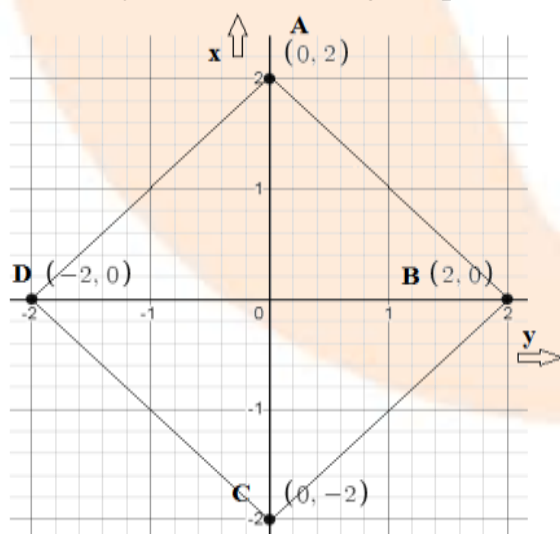
7. In fig. write the Co-ordinates of the points and if we join the points write the name of fig. formed. Also write Co-ordinate of intersection point of AC and BD.



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) If we joined them we get square.



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

**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;

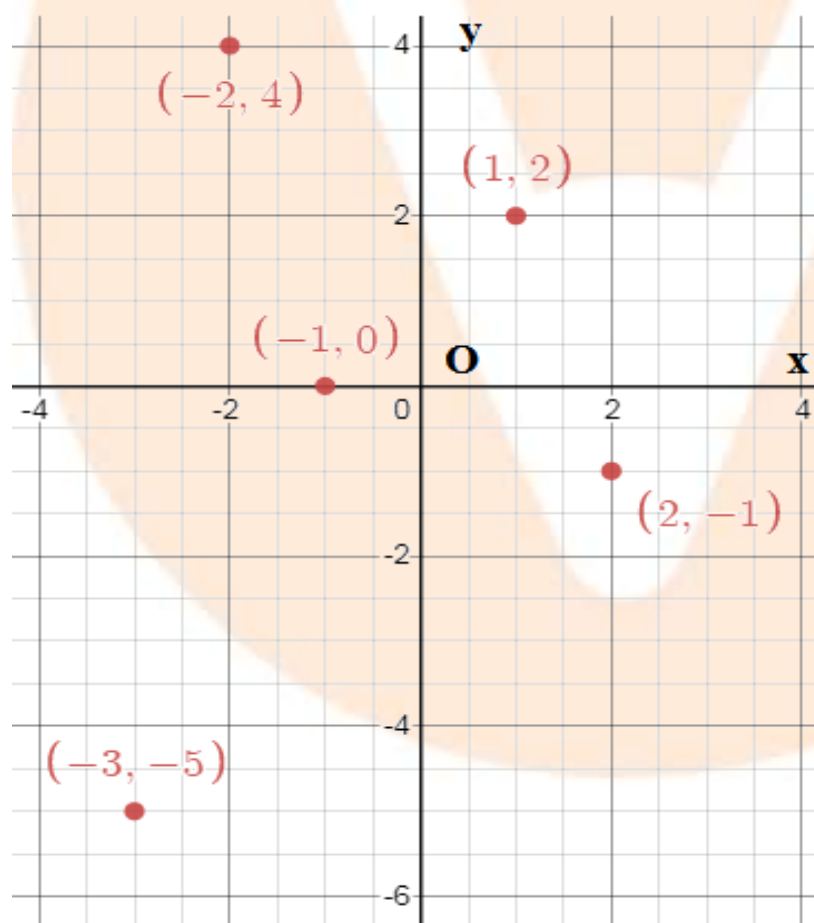
$(2, -1)$  lies in IV quadrant;

$(-1, 0)$  lies on  $-ve$  x-axis;

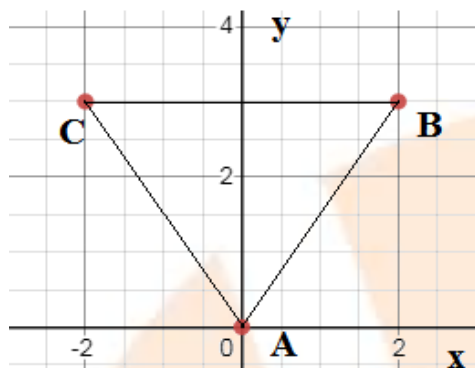
$(1, 2)$  lies in I quadrant and

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

This can be verified using the following graph:



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



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

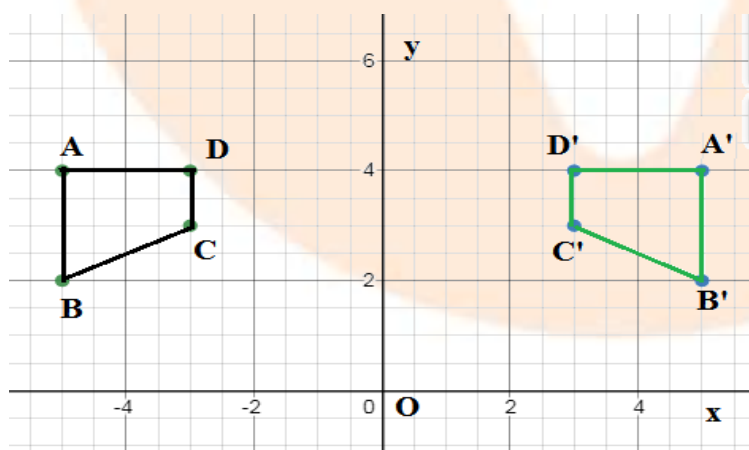
10. Take a quadrilateral ABCD

(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.

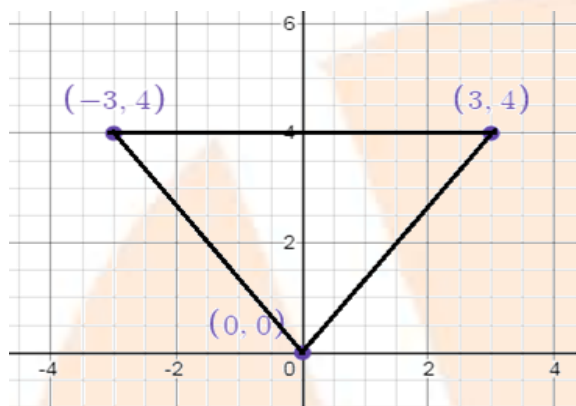
(A) (-5, 4) (B) (-5, 2) (C) (-3, 3) and (D) (-3, 4) wrt y-axis are.

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



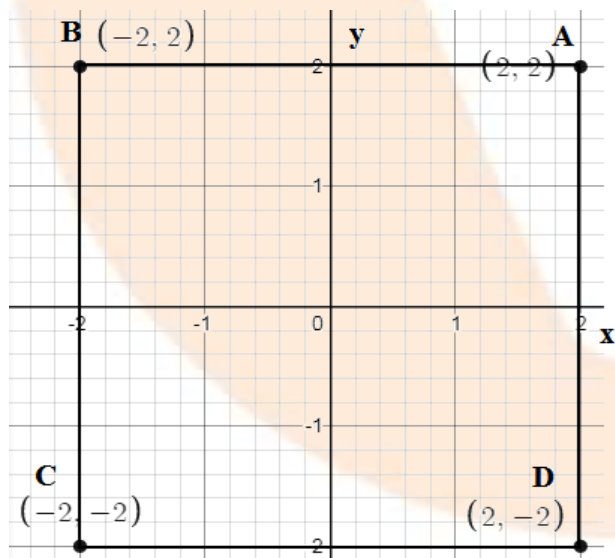
11. Locate the points (A)  $(-3, 4)$  (B)  $(3, 4)$  and (C)  $(0, 0)$  in a Cartesian plane write the name of figure which is formed by joining them.

Ans:



The figure formed is a triangle.

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  $(2, -2)$ .

**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.**

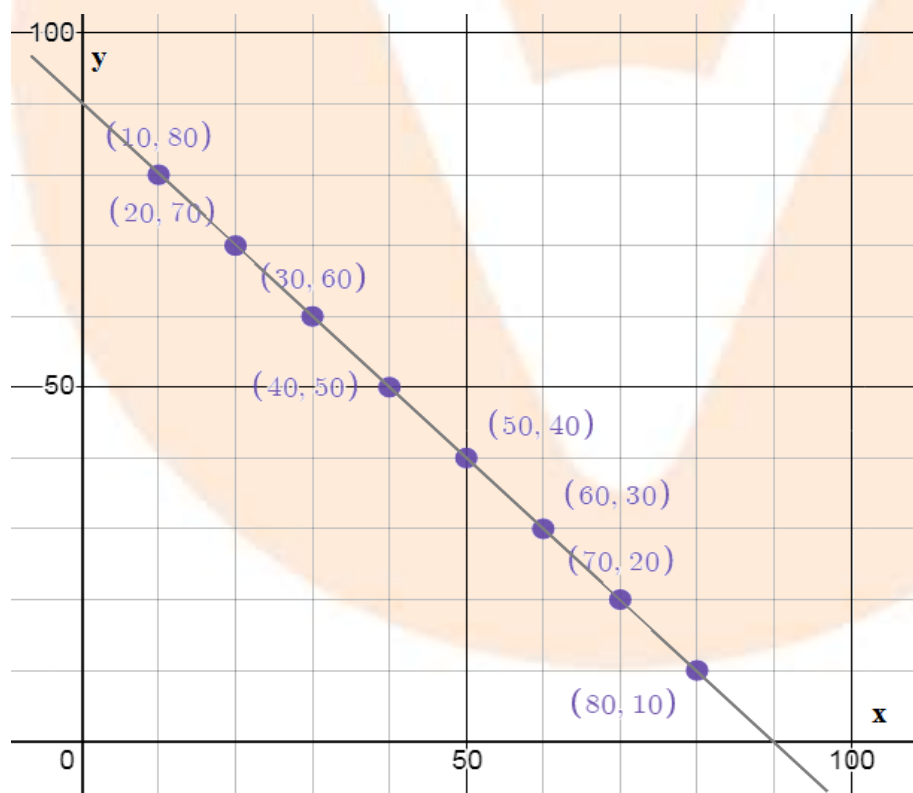
**Ans:** The mirror image of A (-6, 4) is A' (-6, -4) and B (-6, 2) is B' (-6, -2), C (-2, 2) is C' (-2, -2) and D (-2, 4) is D' (-2, -4)

**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:**

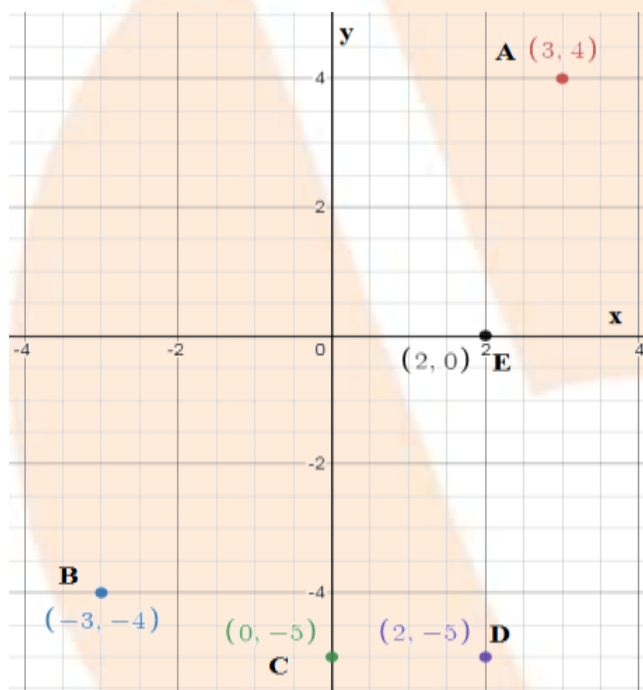




**15. Plot each of the following points in the Cartesian Plane**

- (a) (3, 4)
- (b) (-3, -4)
- (c) (0, -5)
- (d) (2, -5)
- (e) (2, 0)

**Ans:**



**Long Answer Questions**

**4 Marks**

**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  $1\text{ cm} = 200\text{ m}$ , 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:

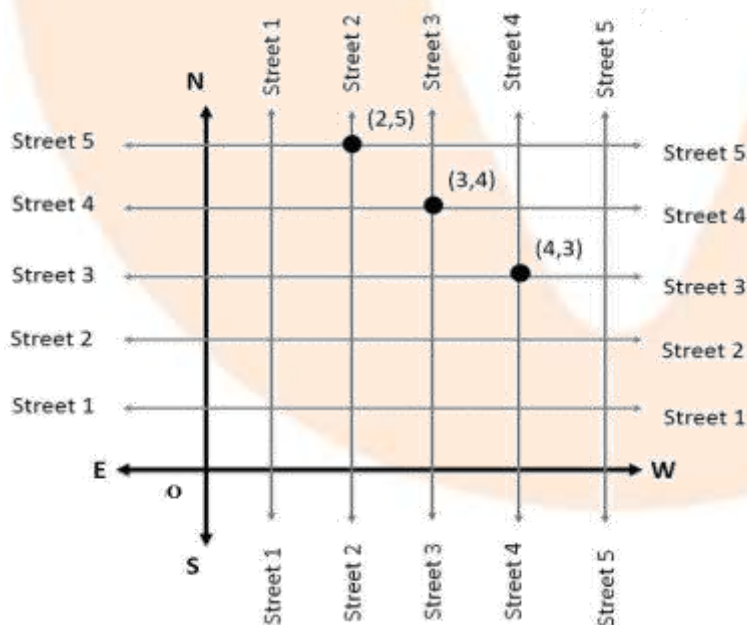
(i) how many cross - streets can be referred to as (4, 3).

(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.

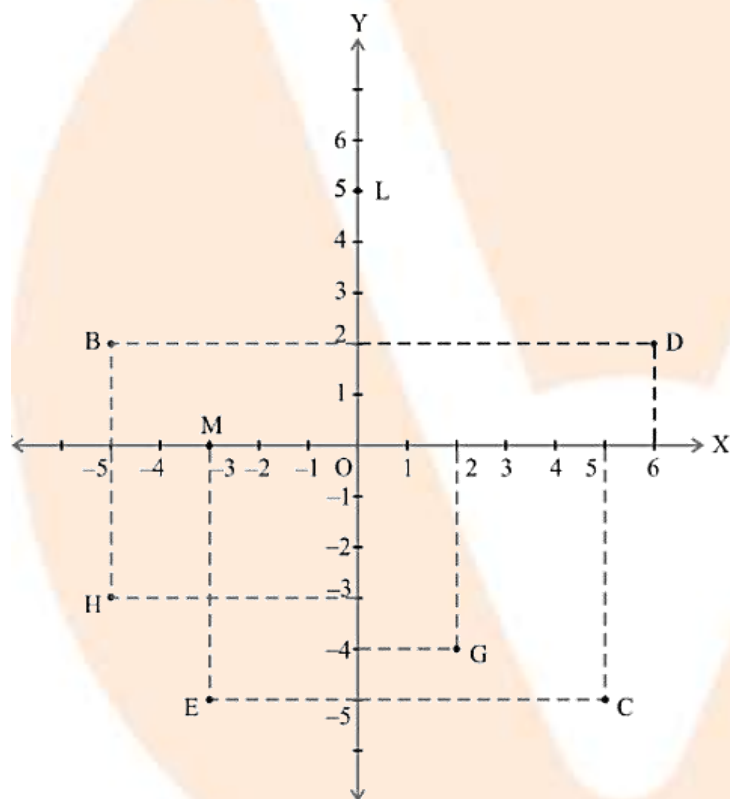
Let us take the scale as  $1\text{ cm} = 200\text{ m}$ .

Following figure shows the perpendicular roads .



- (i) From the figure it can be inferred that only one point have the coordinates as (4,3). Hence, it can be concluded that only one cross - street can be referred to as (4, 3).
- (ii) Only one point have the coordinates as (3,4). Therefore, it can be concluded that only one cross - street can be referred to as (3, 4).

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



(i) The coordinates of B.

**Ans:** 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 C.**

**Ans:** 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 identified by the coordinates  $(-3, -5)$ .**

**Ans:** The point E represents the coordinates  $(-3, -5)$ .

**(iv) The point identified by the coordinates  $(2, -4)$ .**

**Ans:** The point G that represents the coordinates  $(2, -4)$ .

**(v) The abscissa of the point D.**

**Ans:** The abscissa of point D in the given figure is the distance of point D from the y-axis which is 6.

**(vi) The ordinate of the point H.**

**Ans:** The ordinate of point H in the above figure is the distance of point H from the x-axis which is  $-3$ .

**(vii) The coordinates of the point L.**

**Ans:** 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  $(0, 5)$ .

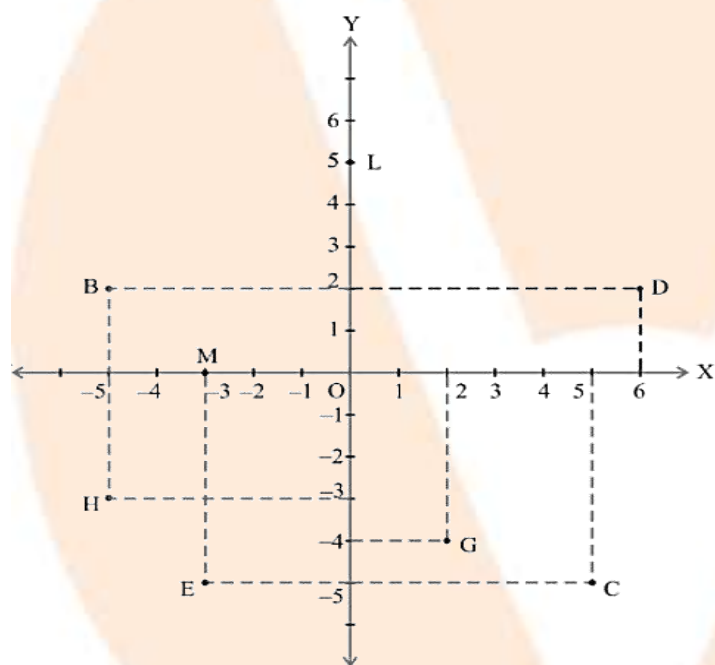
(viii) The coordinates of the point M.

**Ans:** 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  $(-3, 0)$ .

### Long Answer Questions

5 Marks

1. See fig. and write the following



(i) The Co-ordinates of B

**Ans:**  $(-5, 2)$

(ii) The Co-ordinates of C

**Ans:**  $(5, -5)$

**(iii) On which axis point L lies.**

**Ans:** Y-axis

**(iv) The abscissa of the point D**

**Ans:** As shown in the figure the abscissa of point D is 6.

**(v) The Co-ordinates of point L**

**Ans:** (0, 5)

**(vi) On which axis point M lies.**

**Ans:** Point M lies on X-axis.

**(vii) The ordinate of the point H**

**Ans:** The ordinate of point H is -3

**(viii) The Co-ordinates of the point M**

**Ans:** (-3, 0)

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

**Ans:** G has the coordinate (2,-4)

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

**Ans:** E has the coordinate (-3,-5)

**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:** The given equation is  $2x + y = 4$ .

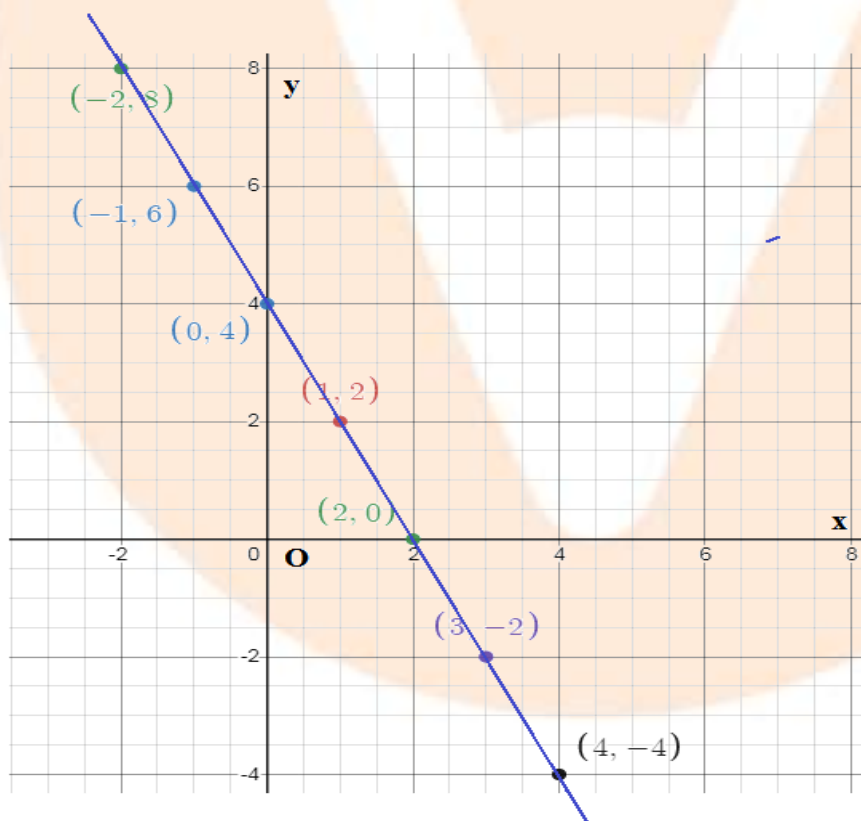
The equation holds if  $x = 0, y = 4$  i.e.  $(0, 4)$ ,

if  $x = 1, y = 2$  i.e.  $(1, 2)$ ,

if  $x = 2, y = 0$  i.e.  $(2, 0)$ ,

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

Similarly  $(4, -4), (5, -6), (-1, 6), (-2, 8)$  etc. also. These are a few ordered pairs which are valid solutions. And there are infinite such ordered pairs

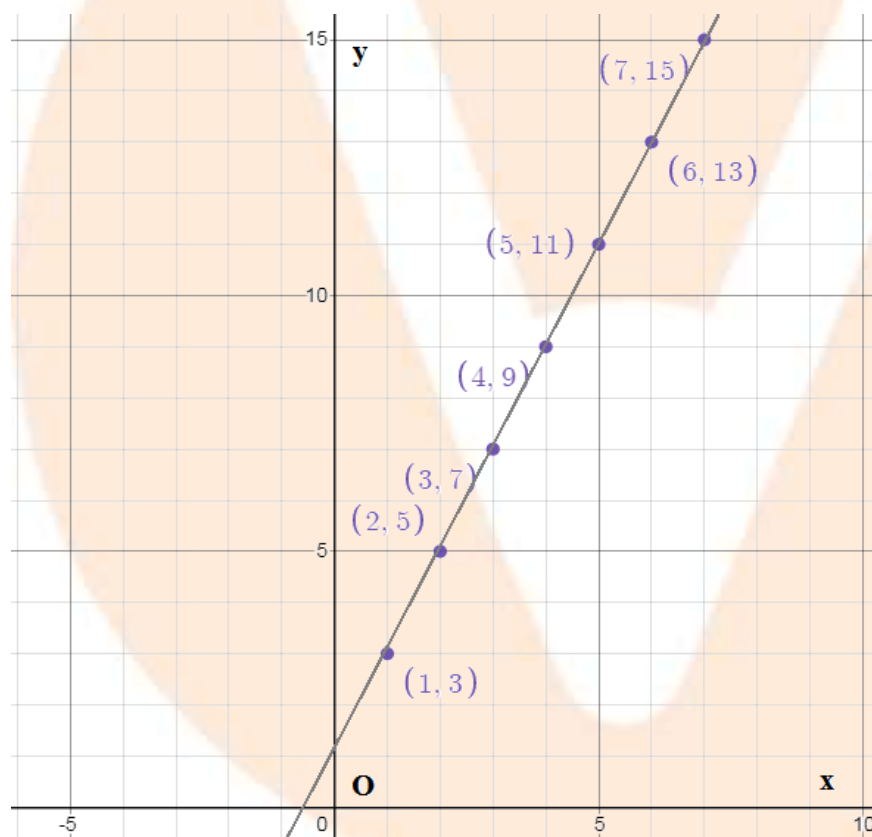


3. The following table given the relation between natural numbers and odd natural numbers

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 a straight line is obtained by joining these points.