

# Standard 9

## Coordinate Geometry

### Cartesian System

#### Total Questions: 28

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#### Question 1:

Write the coordinate of point 5 unit above origin and 5 unit below origin.

#### Options

- (5, 0), (5, 0)
- (-5, 0), (5, 0)
- (0, 5), (0, -5)
- (5, 0), (5, -0)

#### Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of (x, y).

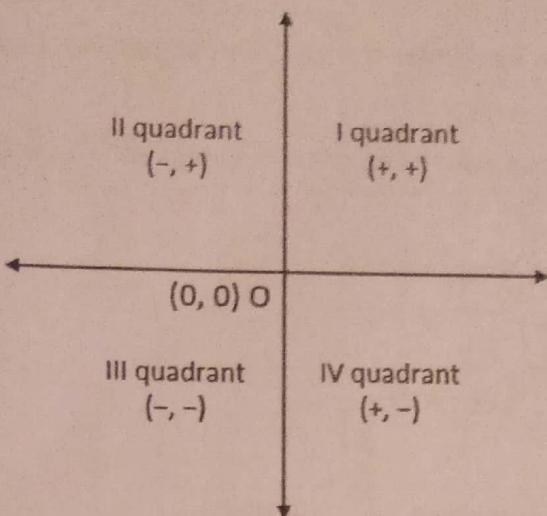
**Step 3 :** The center of the coordinate system (where the lines intersect) is called the origin.

**Step 4 :** The coordinates of the origin are (0, 0).

**Step 5 :** On x-axis its represent with zero this shows that x-axis is its origin.

On y-axis its represent with zero this shows that y-axis is its origin.

**Step 5 :** Quadrants are named using the Roman numerals I, II, III, and IV beginning with the top right quadrant and moving anti-clockwise.



**Step 6 :** From the above Steps we can say that the name of each part of the plane formed by vertical and horizontal line is called as quadrants.

Hence, the correct answer is Quadrant.

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**Question 3:**

What is the value of x coordinate along y-axis?

**Options**

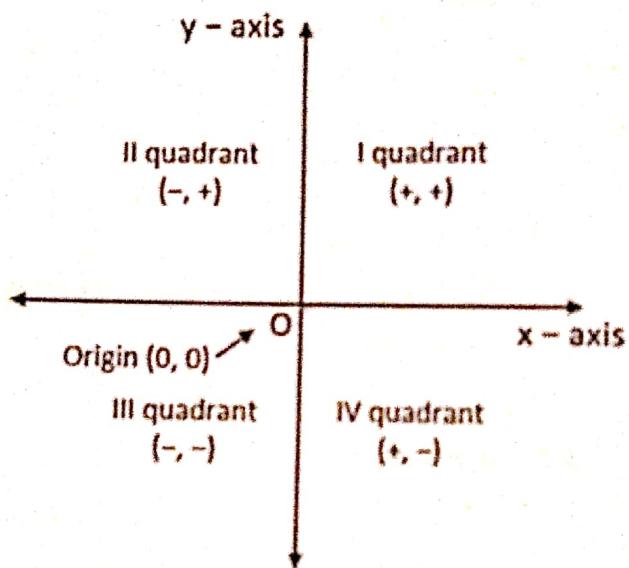
- 0
- 5
- 1
- None of the above

## Solution

Step 1 : The y coordinate is the distance of a point from the origin along y axis.

Step 2 : But if the point lies on x axis there is no vertical distance to measure.

Step 3 : Therefore, distance along y axis is 0.



Step 4 : Therefore, the  $y$ -coordinate of any point on the  $x$ -axis is 0.

Hence, the correct answer is 0.

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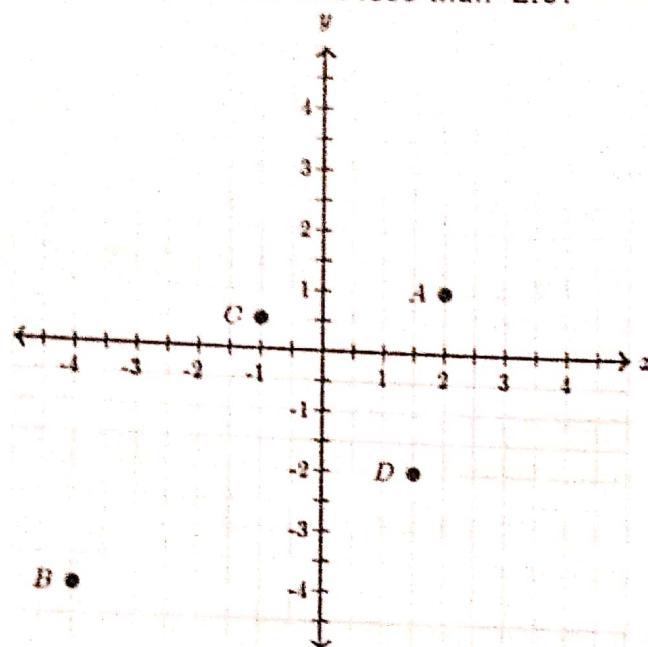
Question 4:

Use the following coordinate plane to find the ordered pair for each point.  
A = (\_\_\_\_\_, \_\_\_\_\_)  
B = (\_\_\_\_\_, \_\_\_\_\_)  
C = (\_\_\_\_\_, \_\_\_\_\_)

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Question 6:

For which points is the y-coordinate less than -2.5?



Options

- (B and D)
- C
- D
- B

Solution

Step 1 : The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

Step 2 : The coordinate is always in form of  $(x, y)$ .

Step 3 : From the figure given, we get,

In first quadrant point is A (2, 1)

In second quadrant point is C (-1, 0.5)

In third quadrant point is B (-4, -4)

In ~~forth~~ quadrant point is D (1.5, -2)

*fourth*

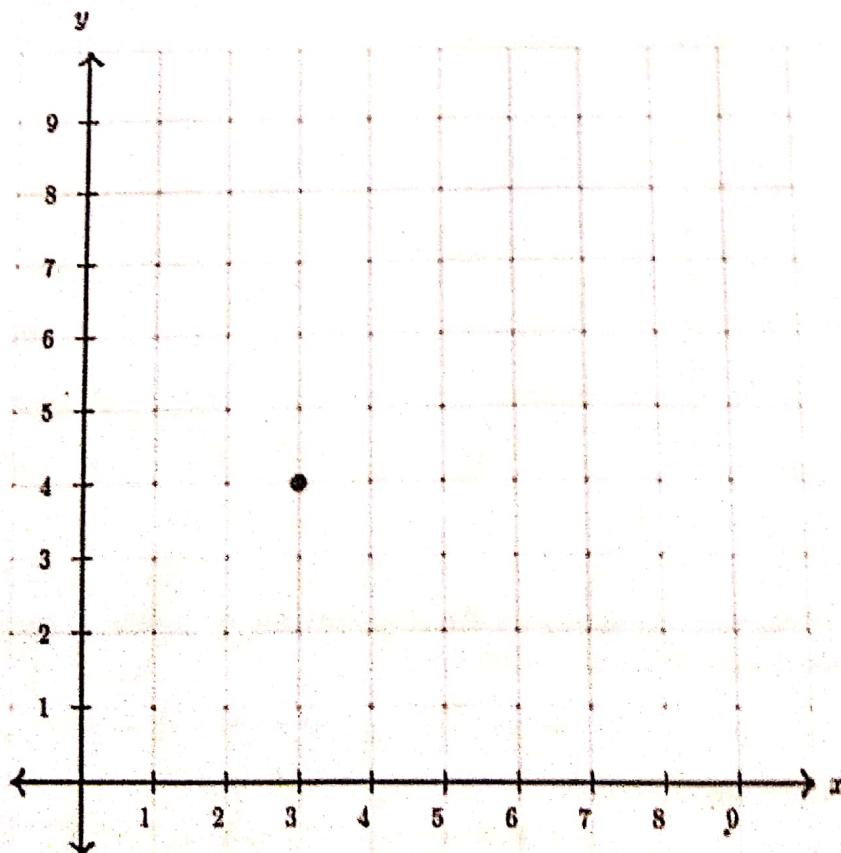
Step 4 : From above Step we get that points is the y-coordinate less than -2.5 is Point B

Hence, the correct answer is B

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Question 7:

What is the x-coordinate of the point plotted below?

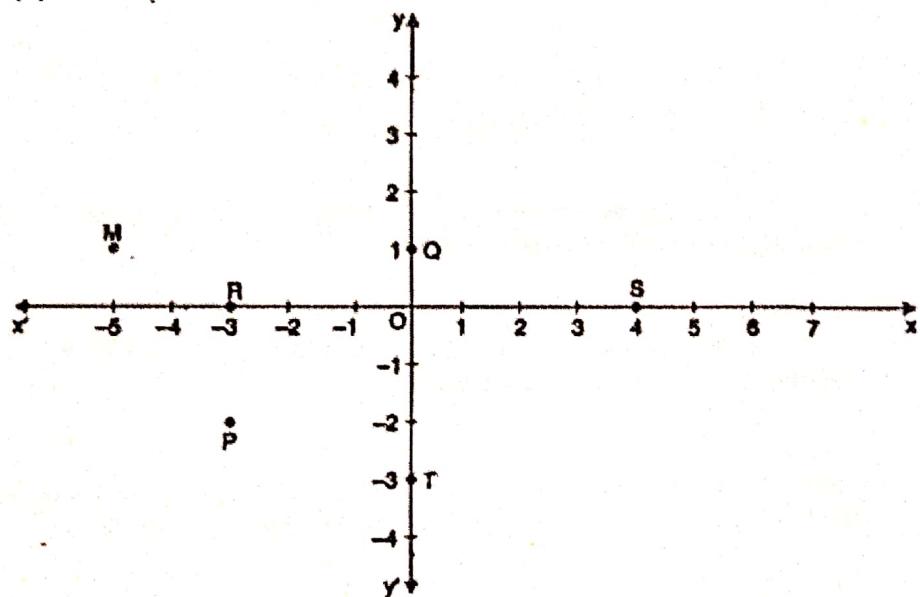


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Question 8:

From given graph write the following:

- i. The coordinates of P.
- ii. The abscissa of the point Q.
- iii. The ordinate of the point R.
- iv. The points whose abscissa is 0.



Options

- i.  $P = (-2, -3)$ , ii.  $Q = 0$ , iii.  $R = 0$ , iv. Abscissa 0(zero) = Q
- i.  $P = (-3, -2)$ , ii.  $Q = 1$ , iii.  $R = 1$ , iv. Abscissa 0(zero) = Q
- i.  $P = (-3, -2)$ , ii.  $Q = 0$ , iii.  $R = 0$ , iv. Abscissa 0(zero) = P
- i.  $P = (-3, -2)$ , ii.  $Q = 0$ , iii.  $R = 0$ , iv. Abscissa 0(zero) = Q

Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of  $(x, y)$ .

**Step 3 :** The ordinate is the y-coordinate of a point on the coordinate plane, the distance along the vertical (y) axis.

The distance of a point from the y-axis on a graph in the Cartesian coordinate system is called as abscissa. It is measured parallel to the ~~x-axis~~.

**Step 4 :** From the given graph, we get

i. The coordinates of P X- coordinates is -3 and y- coordinates is -2 therefore point of is  $(-3, -2)$

ii. The abscissa of the point Q X- coordinates is 0 and y- coordinates is 1 point Q  $(0, 1)$  therefore, The abscissa of the point Q is 0

iii. The ordinate of the point R X- coordinates is -3 and y- coordinates is 0 point R  $(-3, 0)$  therefore, The ordinate of the point R is 0

iv. The points abscissa is whose x- coordinate is 0 therefore the point Q is  $(0, 1)$  therefore, the point whose abscissa is 0 is Q.

**Step 5 :** From the above Steps we can say that the coordinates of P =  $(-3, -2)$ , abscissa of the point Q = 0, ordinate of the point R = 0, points whose abscissa is 0 = Q.

Hence, the correct answer is i. P =  $(-3, -2)$ , ii. Q = 0, iii. R = 0, iv. Abscissa 0(zero) = Q

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Question 9:

In which quadrant the following points lie?

- II quadrant
- III quadrant
- IV quadrant
- I quadrant

## Solution

Step 1 : Given points,

(1, -8)

form  
a

Step 2 : The intersection of x and y axis, formed four quadrants.

Step 3 : The coordinate is always in form of (x , y).

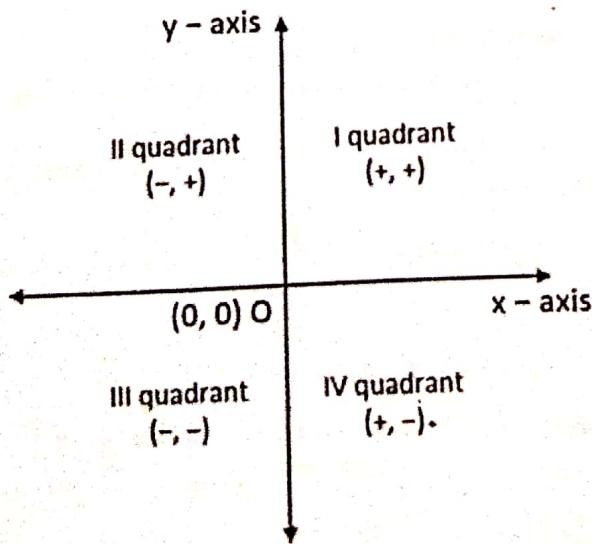
Step 4 : Quadrants are as follows:

I quadrant (+ , +).

II quadrant (- , +).

III quadrant (- , -).

IV quadrant (+ , -).



From the above diagram we can say that the (1, -8) lies on the IV quadrant.

**Question 11:**

Find the co-ordinates of the point of following:  
Whose ordinate is -2 and lies on y axis.

**Options**

- (A) (0, 0)
- (B) (0, -2)
- (C) (4, 0)
- (D) None of these.

**Solution**

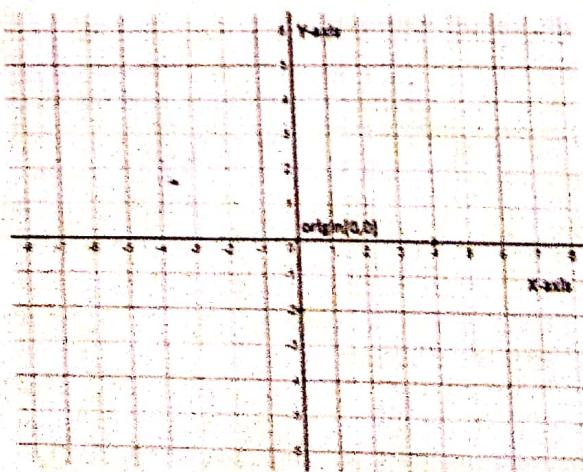
Step 1 : The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

cartesian

Step 2 : The ordinate is the y co-ordinate of a point on the coordinate plane, the distance along the vertically(y) axis.

Step 3 : The point whose ordinate is -2 and lies on y axis is (0, -2).

Step 4 : The coordinate is always in form of (x, y).



**Step 5 :** From the above Steps we can say that the point which is (0, -2).

Hence, the correct answer is (0, -2).

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### Question 12:

Which of the following points lie on x-axis:

Options

- (0, 2)
- (0, 0)
- (2, 0)
- None of the above

### Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of (x, y).

centre

**Step 3 :** The center of the coordinate system (where the lines intersect) is called the origin.

**Step 4 :** The coordinates of the origin are (0, 0).

**Step 5 :** On x-axis it represents with zero this shows that x-axis is its origin.

On y-axis its represent with zero this shows that y-axis is its origin.

Step 6 : From above Steps we can say that the points lie on x-axis is (2, 0).

Hence the correct answer is (2, 0).

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### Question 13:

What is the coordinates of the point of origin?

#### Options

- Point (1, -1)
- Point (0, 0)
- Point (-1, 1)
- None of the above

#### Solution

Step 1 : The center of the coordinate system (where the lines intersect) is called the origin.

Step 2 : The axes intersect when both x and y are zero.

Step 3 : The coordinates of the origin are (0, 0).

Step 4 : An ordered pair contains the coordinates of one point in the coordinate system.

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### Question 16:

Fill in the blank:

The horizontal line is called as \_\_\_\_\_.

Options

- axes
- x-axis
- y-axis
- None of these

Solution

Labelled

Step 1 : A coordinate grid has two perpendicular lines, or axes, labeled like number lines.

Step 2 : The horizontal axis is called the x-axis. The vertical axis is called the y-axis.

Step 3 : The point where the x-axis and y-axis intersect is called the origin.

## Solution

Step 1 : The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

Step 2 : The coordinate is always in form of  $(x, y)$ .

Step 3 : The coordinate of a point on the x-axis is  $(x\text{-coordinate}, 0)$  therefore  $y = 0$

Step 4 : The y-coordinate is equal to 0 as the point lies on the x-axis, there is no value which can be assigned to the y-coordinate.

Step 5 : A value can be assigned to the x-coordinate as the point will be somewhere on the x-axis and it will have definite number as a value.

Step 6 : Then the perpendicular distance of point from x-axis will be zero, so ordinate will be zero.

Hence, the correct answer is 0.

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Question 19:

How many axis and quadrant are in the cartesian plane?

Options

2 axes and 4 quadrants

*axes*

axes

4 axis and 2 quadrants

axes

2 axis and 2 quadrants

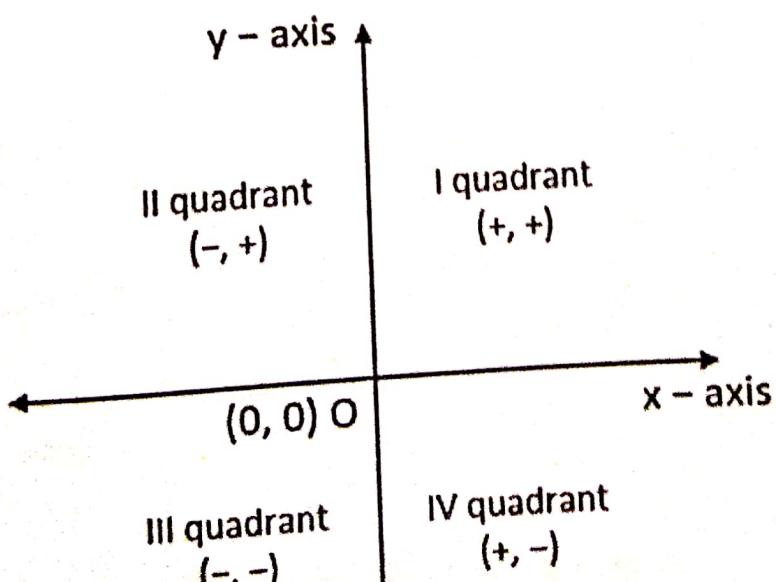
axes

4 axis and 4 quadrants

## Solution

**Step 1 :** The name of horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The name of each part of the plane formed by these two lines x-axis and the y-axis is quadrants.



**Step 4 :** From the above Steps we can say that, there are the 2 axis(x-axis and y-axis), 4 quadrants in the cartesian plane.

axes

Hence, the correct answer is "2 axis and 4 quadrants".

axes

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**Question 20:**

How many quadrant can be formed by two perpendicular lines in a plane?

**Options**

- 2 quadrants**
- 0 quadrants**
- 4 quadrants**
- None of the above**

**Solution**

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 3 : It is divided into four quadrants,**

I quadrant.

II quadrant.

III quadrant.

IV quadrant.

The intersection of x and y axis formed four quadrants.

**Step 4 : From the above Steps we can say that there are the 4 quadrants in plane.**

**Hence, the correct answer is 4 quadrants.**

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**Question 21:**

**Which of the following points lie on y-axis:**

**Options**

(0, 0)

(9, 0)

None of the above

## Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of (x, y).

**Step 3 :** The center of the coordinate system (where the lines intersect) is called the *centre*.

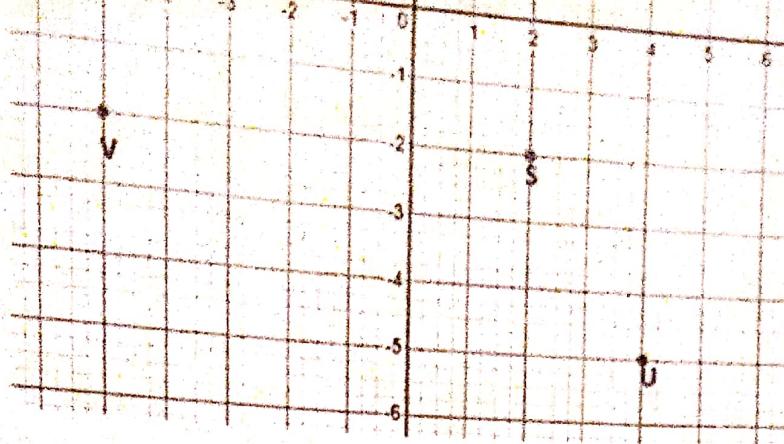
**Step 4 :** The coordinates of the origin are (0, 0).

**Step 5 :** On x-axis its represent with zero this shows that x-axis is its origin.

On y-axis its represent with zero this shows that y-axis is its origin.

**Step 6 :** From above Steps we can say that the points lie on y-axis is (0, 9).

Hence the correct answer is (0, 9)



## Options

- P = (-3, 4), Q = (2, -2), R = (5, 2), S = (3, 6).
- P = (3, 6), Q = (-3, 4), R = (5, 2), S = (2, -2).
- P = (-3, 4), Q = (3, 6), R = (5, 2), S = (2, -2).
- P = (-3, 4), Q = (3, 6), R = (2, -2), S = (5, 2).

## Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of (x,y).

**Step 3 :** From the given graph, we get

P = x-coordinates is -3 and y-coordinates is 4 therefore point of P is (-3, 4),

Q = x-coordinates is 3 and y-coordinates is 6 therefore point of Q is (3, 6),

R = x-coordinates is 5 and y-coordinates is 2 therefore point of R is (5, 2),

$S =$  x-coordinates is 2 and y-coordinates is -2 therefore point of S is  $(2, -2)$ .

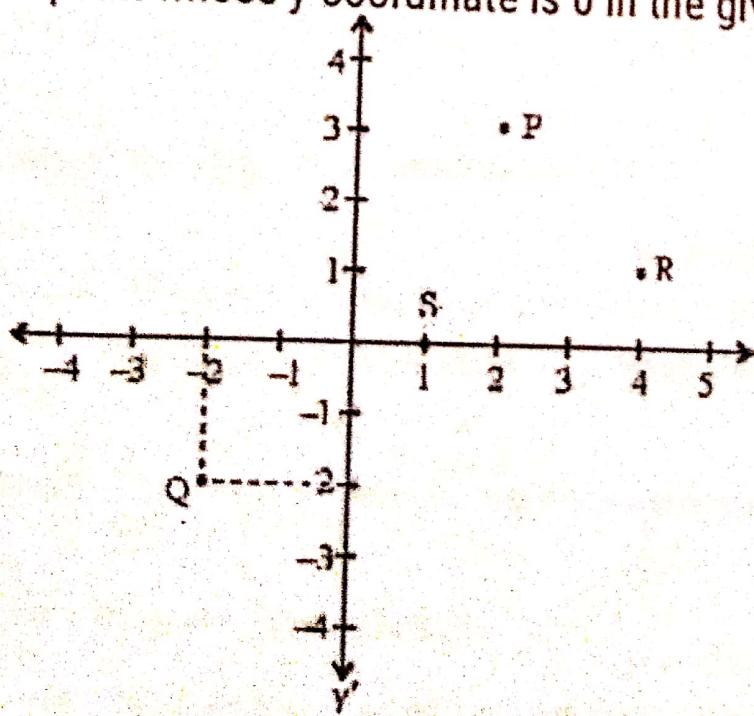
**Step 4 :** From the above Steps we can say that the co-ordinates of the points P, Q, R, S are  $(-3, 4)$ ,  $(3, 6)$ ,  $(5, 2)$ ,  $(2, -2)$ .

Hence, the correct answer is  $P = (-3, 4)$ ,  $Q = (3, 6)$ ,  $R = (5, 2)$ ,  $S = (2, -2)$ .

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**Question 23:**

The point whose y-coordinate is 0 in the given figure is:



**Options**

*y-coordinate is always in form of (x, y).*

**Step 3 :** According to given figure y-coordinate of

P is 3.

Q is -2.

R is 1.

S is 0.

**Step 4 :** From the above Steps we can say that, the point whose y-coordinate is 0 is S.

Hence, the correct answer is S.

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**Question 24:**

State whether the following statement is True or False:  
The axes intersect at a point called the origin.

**Options**

**False**

**True**

**Solution** centre

**Step 1 :** The center of the coordinate system (where the lines intersect) is called the origin.

## Solution

**Step 1 :** The horizontal and vertical lines drawn to determine the position of any point in the Cartesian plane is x-axis and y-axis respectively.

**Step 2 :** The coordinate is always in form of  $(x, y)$ .

centre

**Step 3 :** The center of the coordinate system (where the lines intersect) is called the origin.

**Step 4 :** The coordinates of the origin are  $(0, 0)$ .

**Step 5 :** On x-axis its represent with zero this shows that x-axis is its origin.

On y-axis its represent with zero this shows that y-axis is its origin.

**Step 6 :** The Y coordinate of a point on x axis is also 0 as well as the x coordinate of a point on y axis will be 0.

**Step 7 :** The coordinate of point 1 unit left to origin and 1 unit right to origin is  $(-1, 0)$ ,  $(1, 0)$ .

Hence the correct answer is  $(-1, 0)$ ,  $(1, 0)$ .

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**Question 26:**

Find the coordinates of points A, B, C and D in the given figure.