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CLASS – 9

MATHS

Chapter - 3

Coordinate Geometry

Part – 1
Introduction to Coordinate Geometry

Vikas Saini

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OVERVIEW

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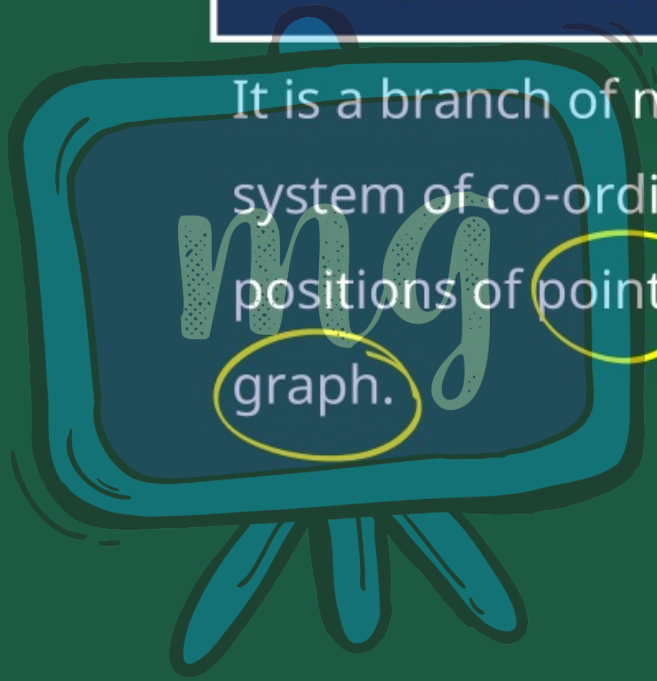


1. Introduction to Coordinate Geometry
2. Cartesian plane

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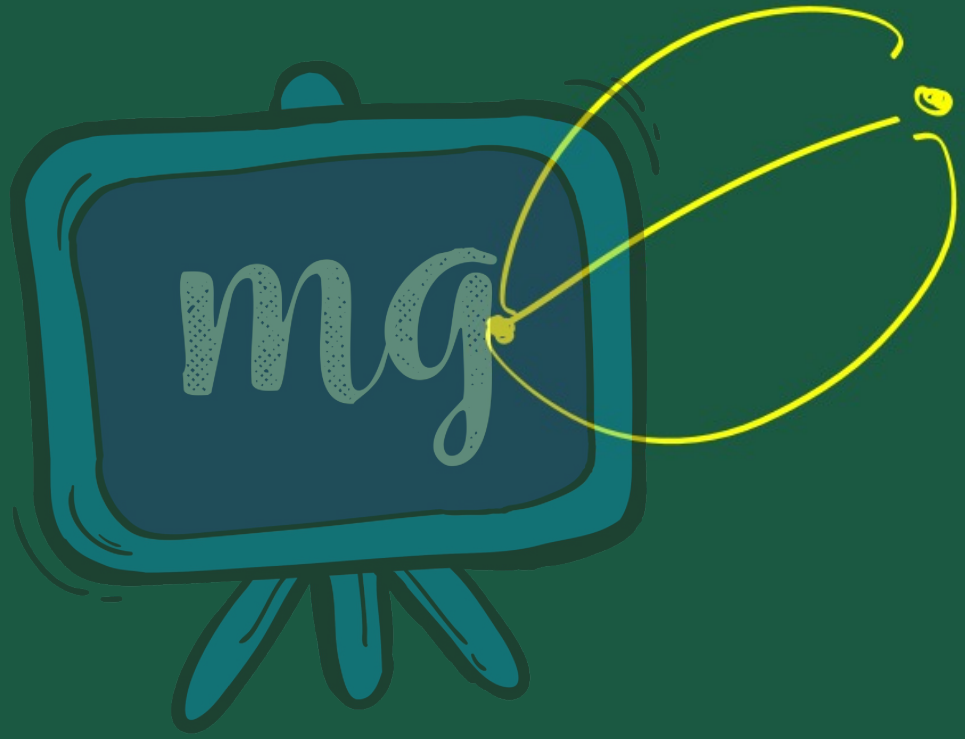
COORDINATE GEOMETRY



It is a branch of mathematics that uses system of co-ordinates to describes the positions of points, lines & shapes on a graph.

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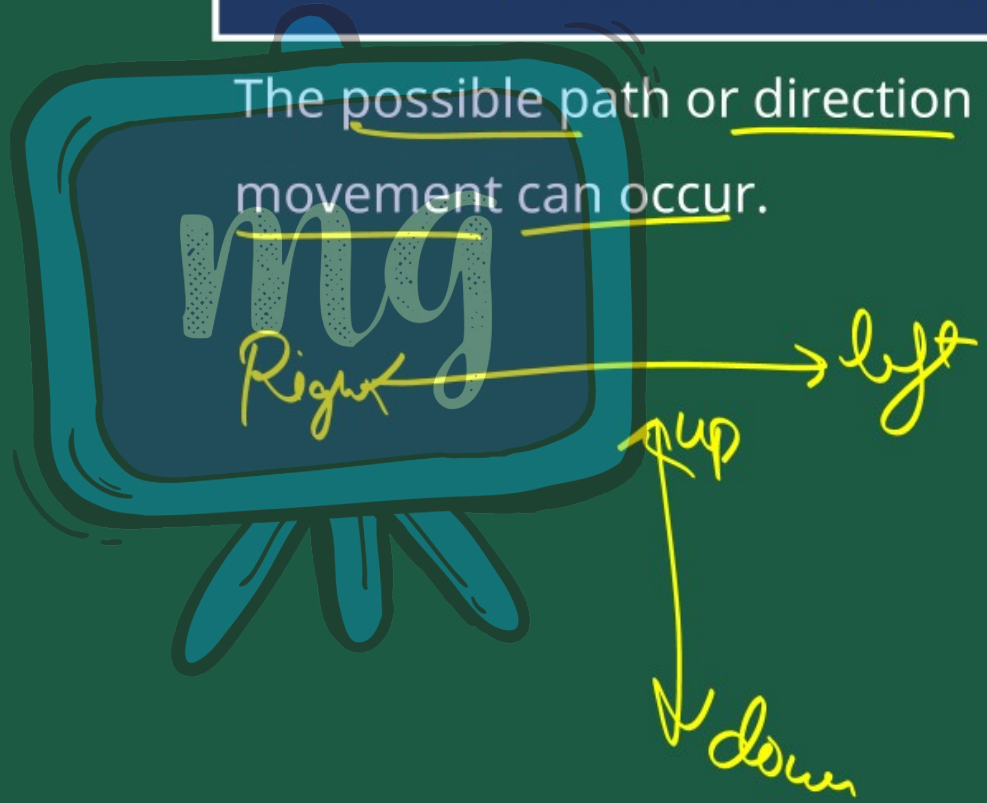


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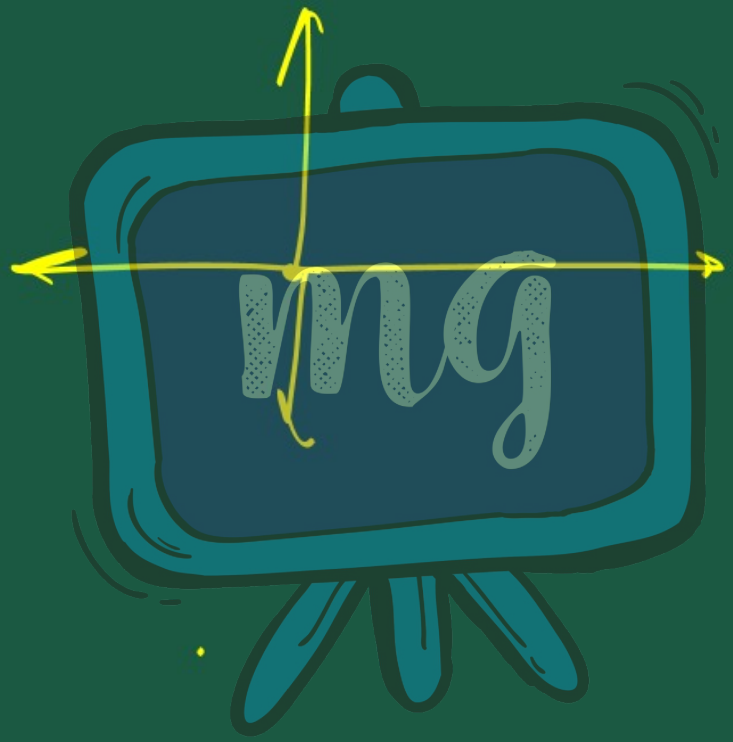
PHYSICAL DIMENSIONS

The possible path or direction in which movement can occur.



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1 D

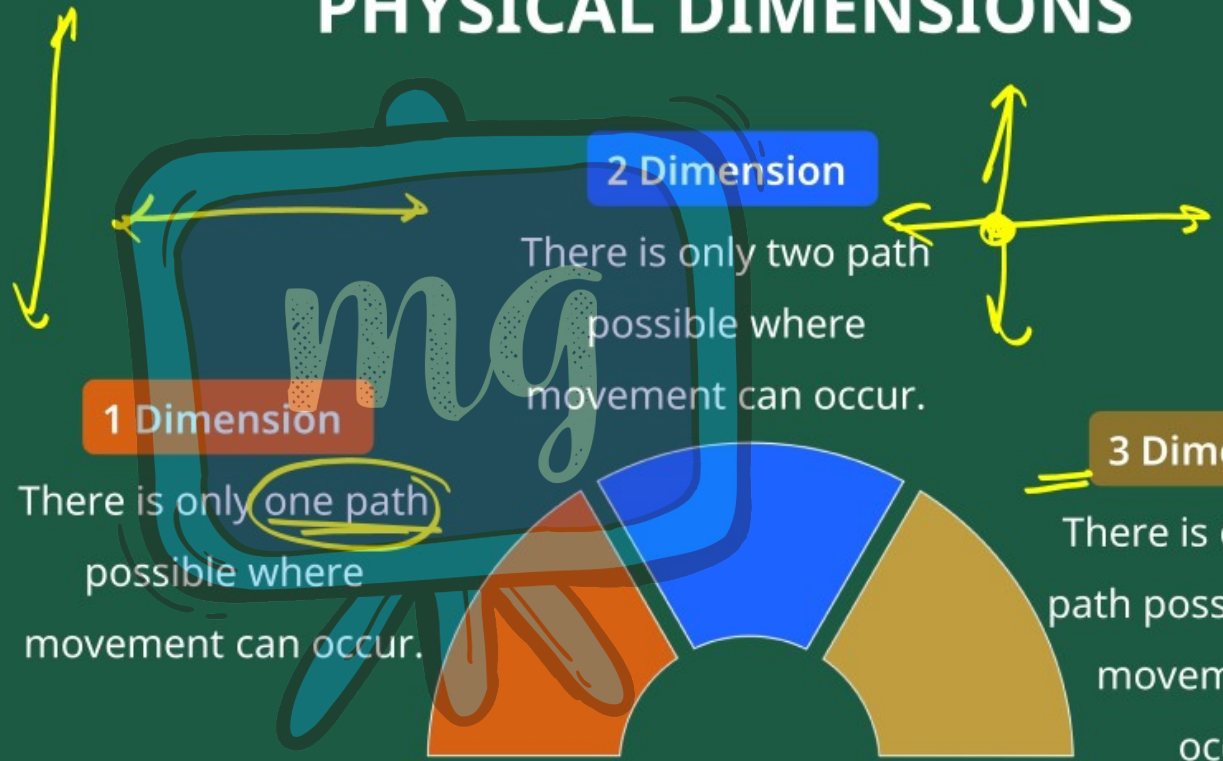
2 D

3 D

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PHYSICAL DIMENSIONS



1 Dimension

There is only one path possible where movement can occur.

2 Dimension

There is only two path possible where movement can occur.

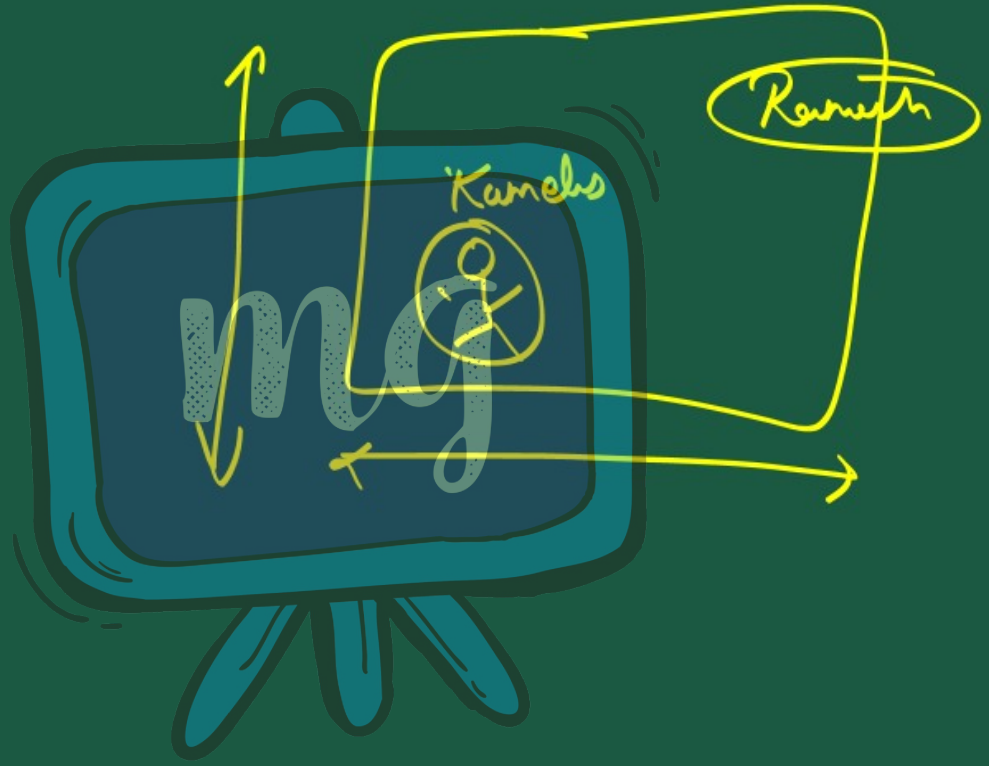
3 Dimension

There is only three path possible where movement can occur.


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Ramesh
PIZZA
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Ramesh

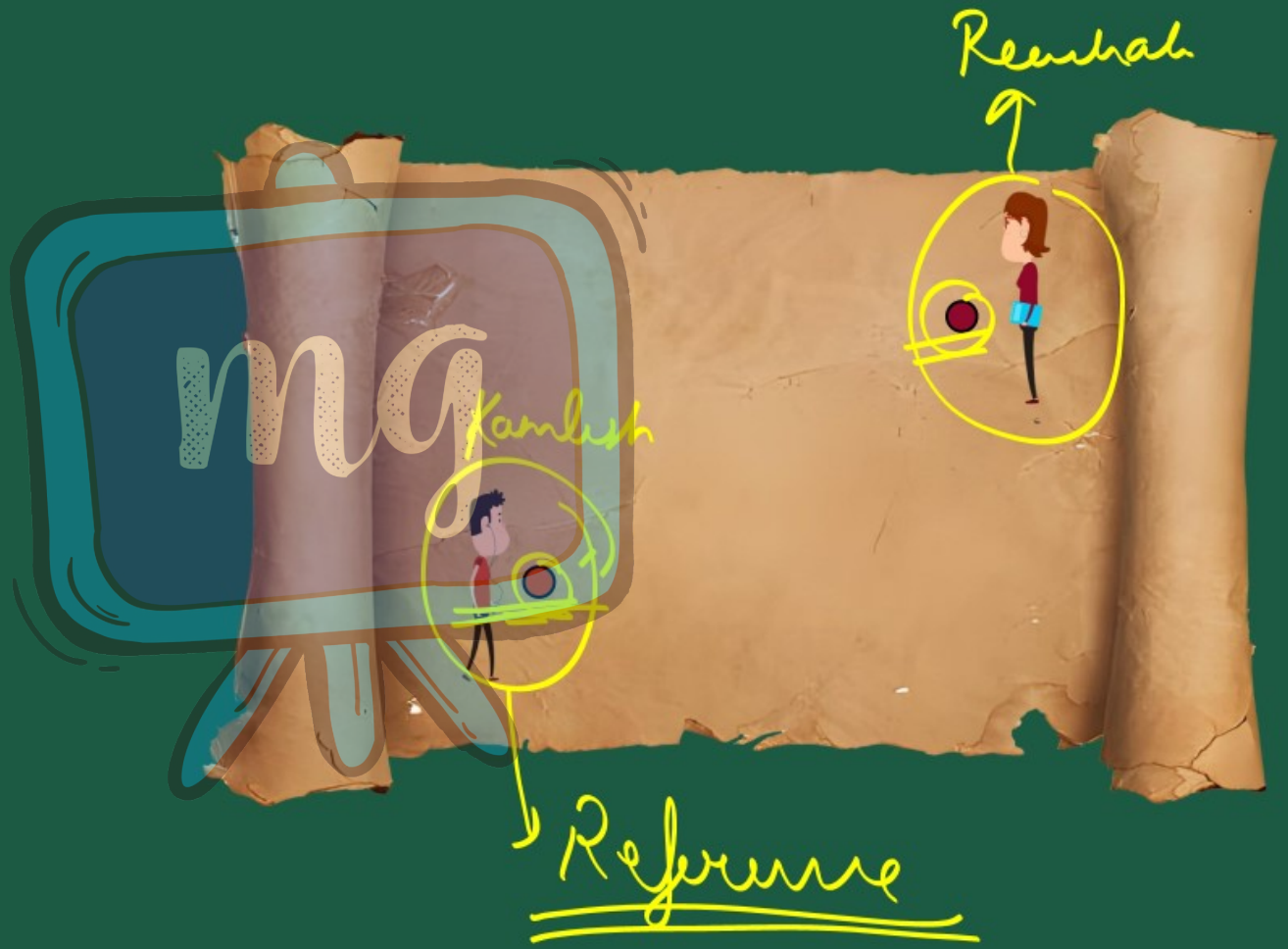
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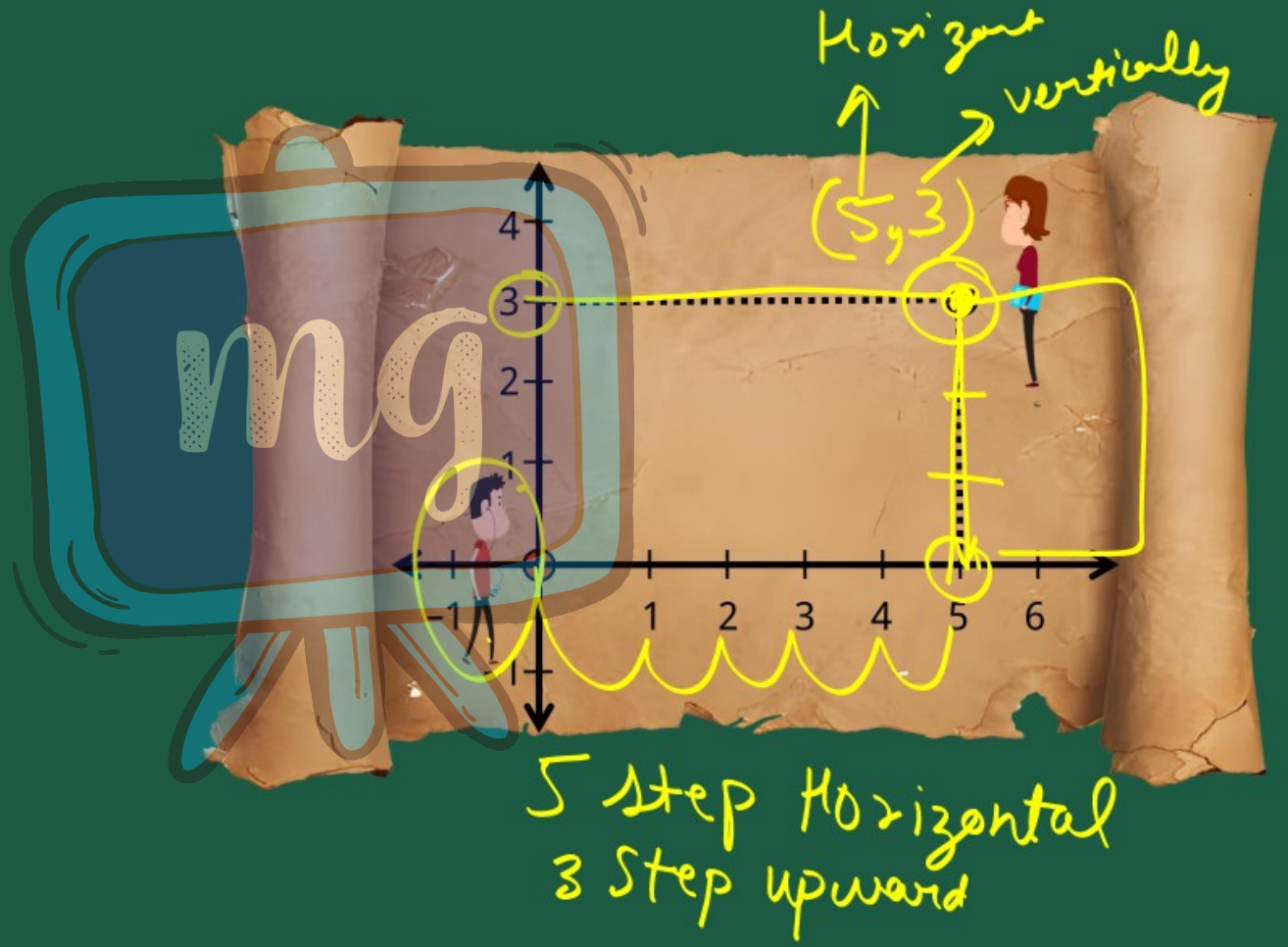
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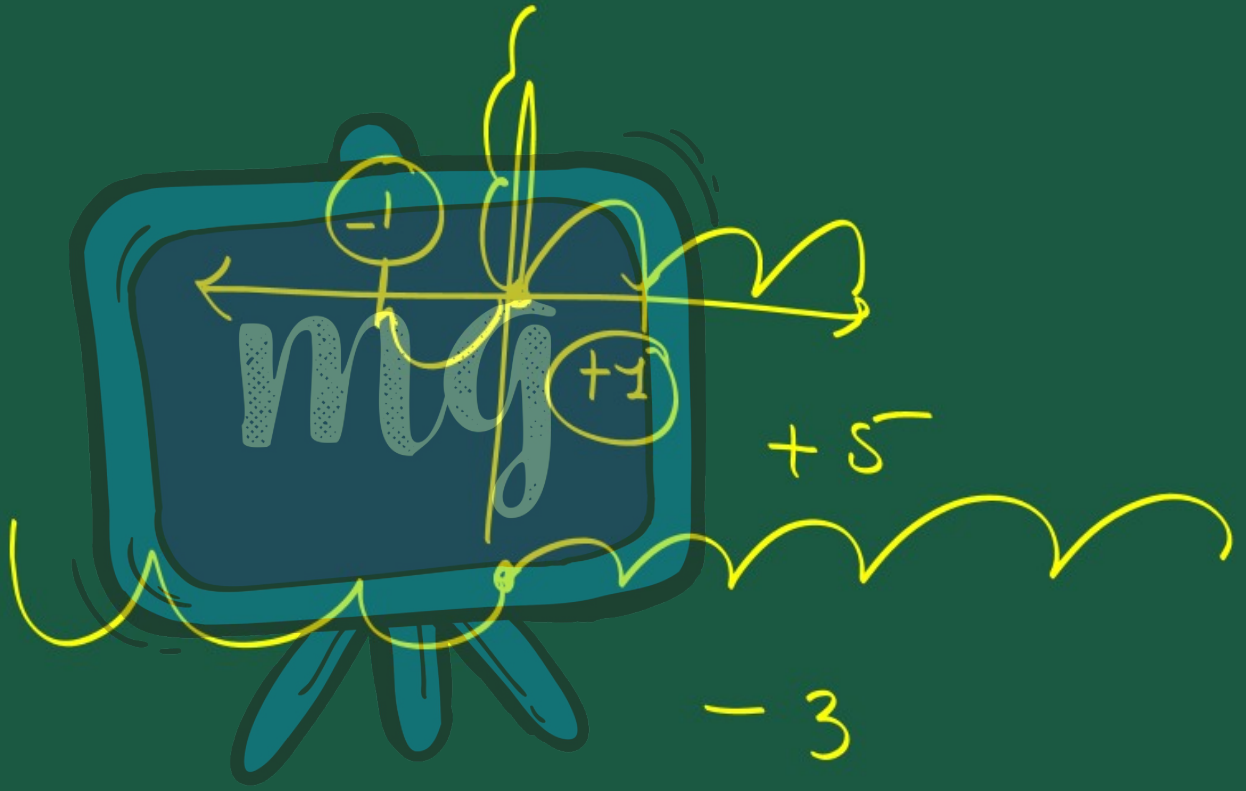
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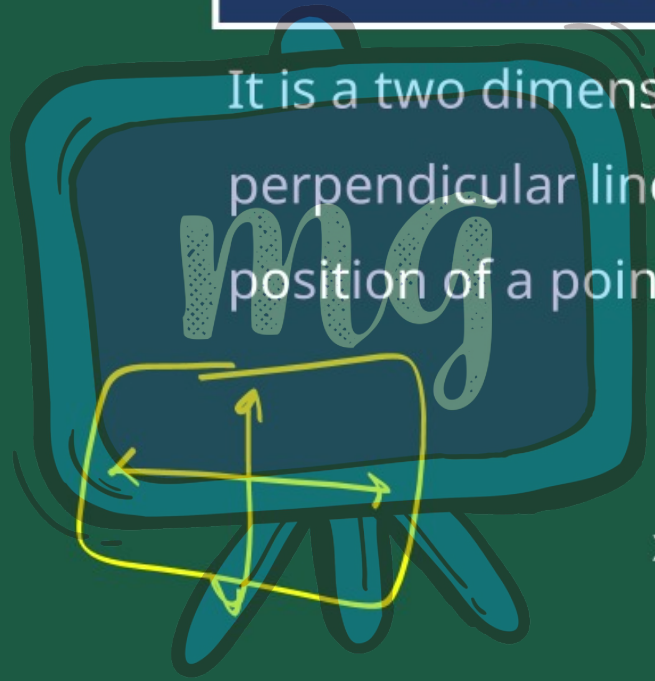


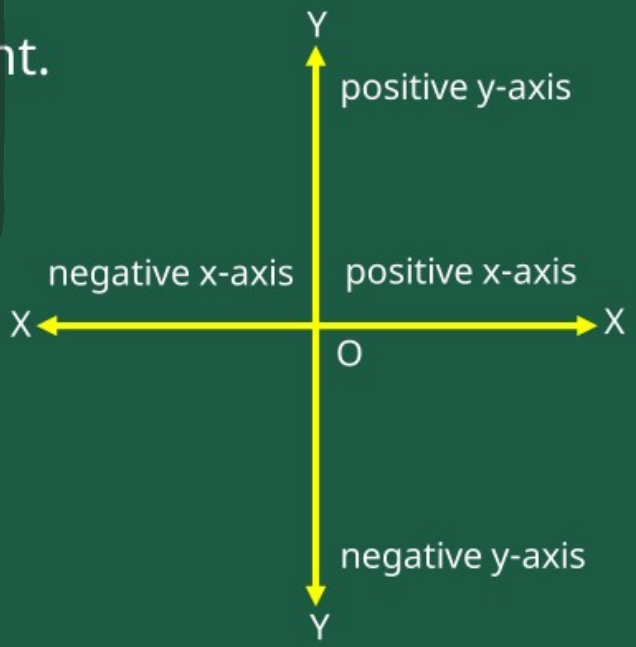
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CARTESIAN PLANE

It is a two dimensional plane formed by two perpendicular line used to locate the position of a point.





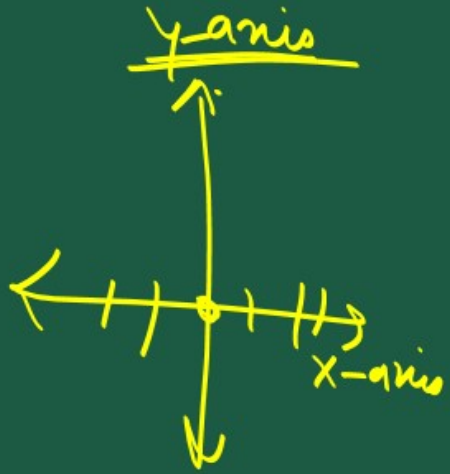
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CO-ORDINATE AXIS

The two perpendicular number lines that form the cartesian plane called Co-ordinate axes.

- Horizontal axis (x-axis)
- Vertical axis (y-axis)



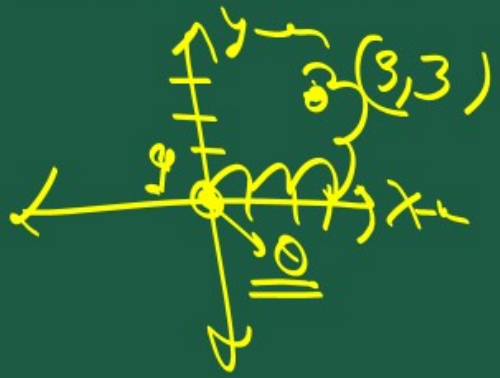
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ORIGIN

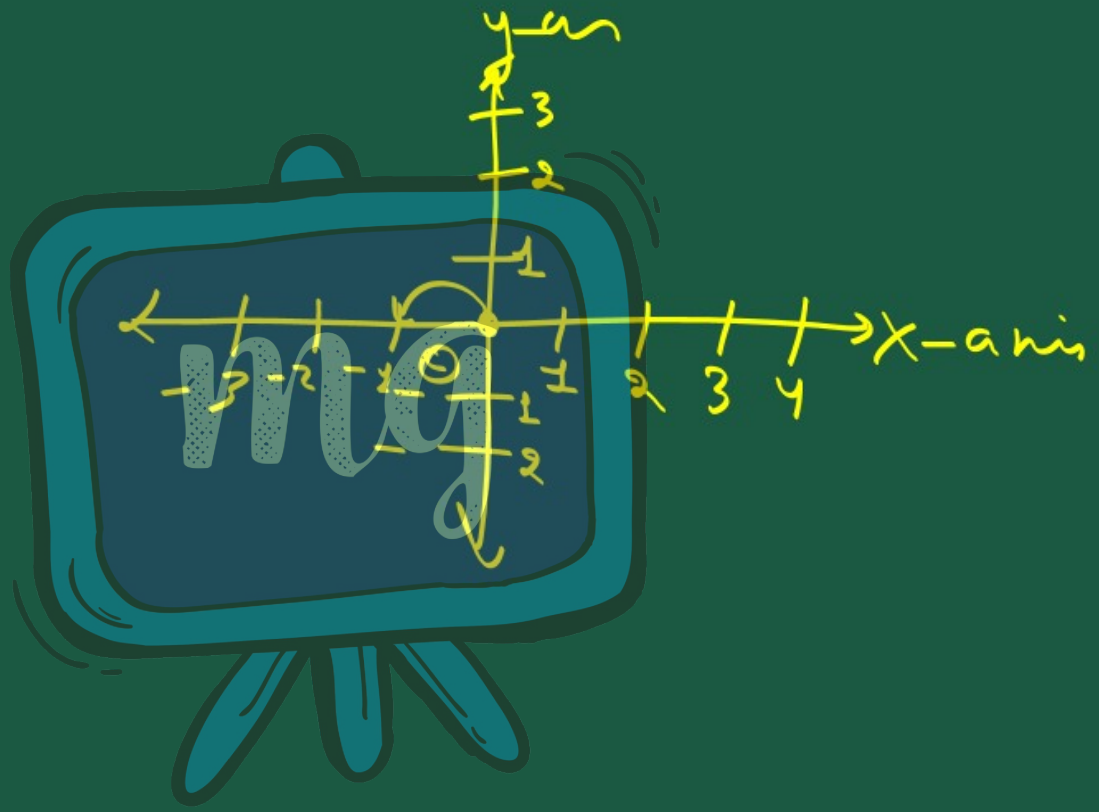
The point where x-axis and y-axis intersect each other is called the origin.

It is the reference point where all other points are measure.



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CO-ORDINATES



It refers to pair of position of a point on a cartesian plane.

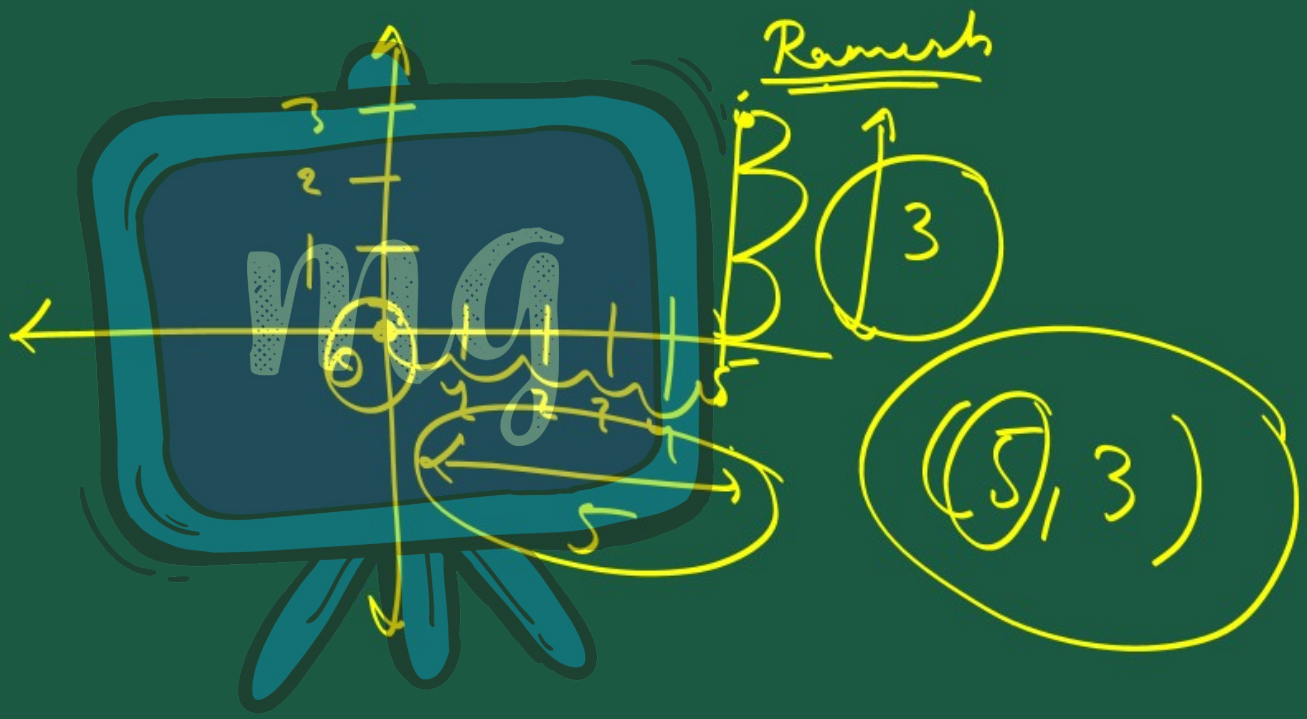


Co-ordinates are written as (x,y) where

- x Represents the position of point on x-axis
- y represents the position of point on y-axis
- x- Co-ordinate called **abscissa**
- y-Co-ordinate called **ordinate**

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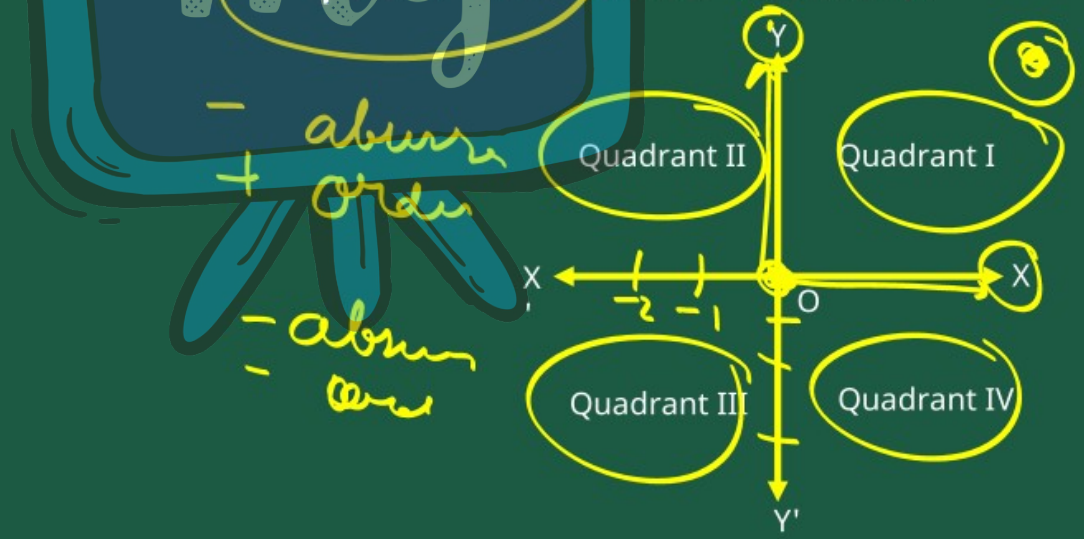


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QUADRANTS

The x-axis and y-axis divide the plane into four parts which are called quadrants (one-fourth).



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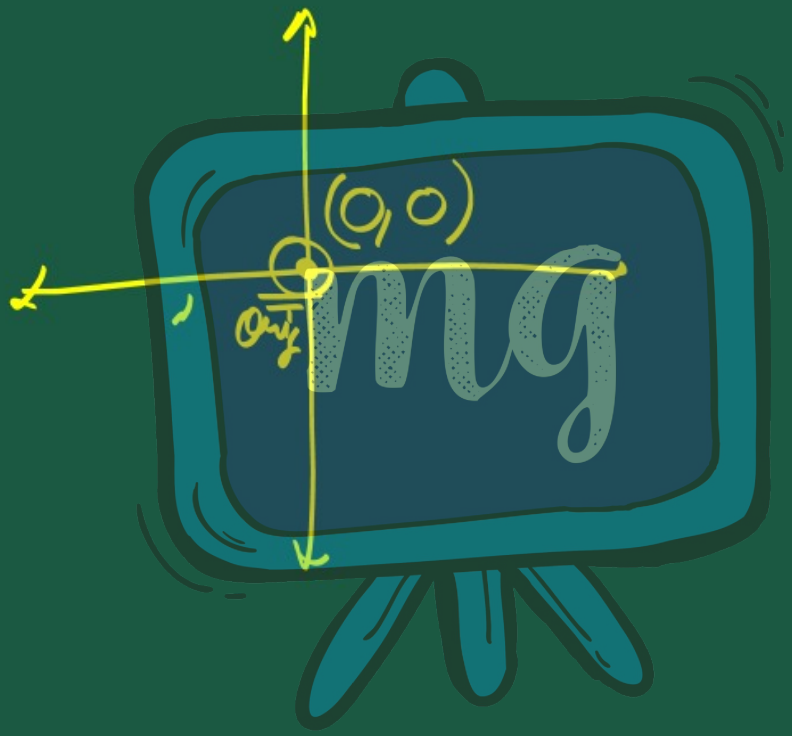
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KEY-POINTS

- The co-ordinates of origin are (0,0)
- The sign convention of co-ordinates of a point (x,y) in quadrant are
  - I-Quadrant : (+,+)
  - II-Quadrant : (–,+)
  - III-Quadrant : (–,–)
  - IV-Quadrant : (+,–)

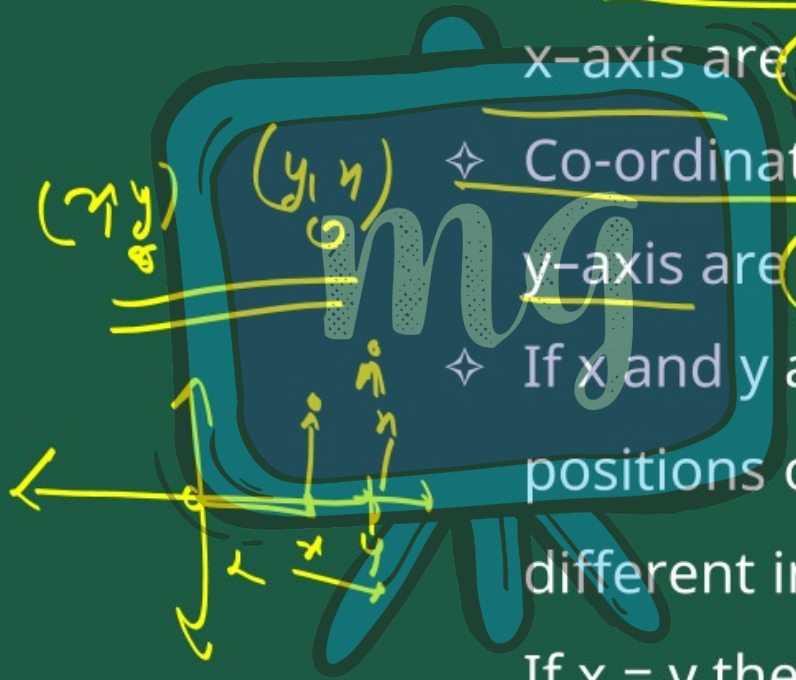
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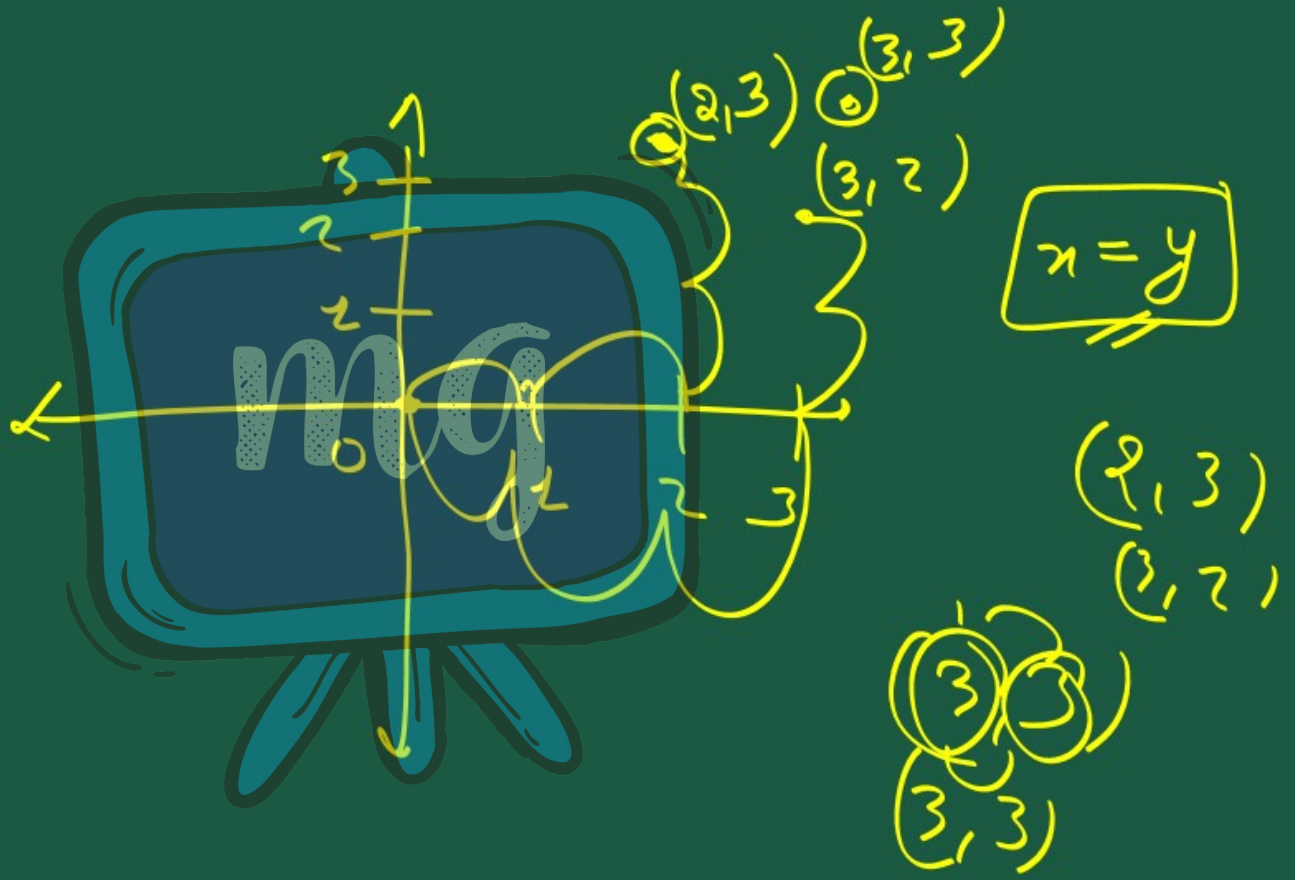


- Co-ordinates of a point on only on x–axis are (x,0)
- Co-ordinates of a point on only on y–axis are (0,y)
- If x and y are not equal then the positions of (x, y) and (y, x) will be different in the plane.

  If x = y then (x, y) = (y, x)

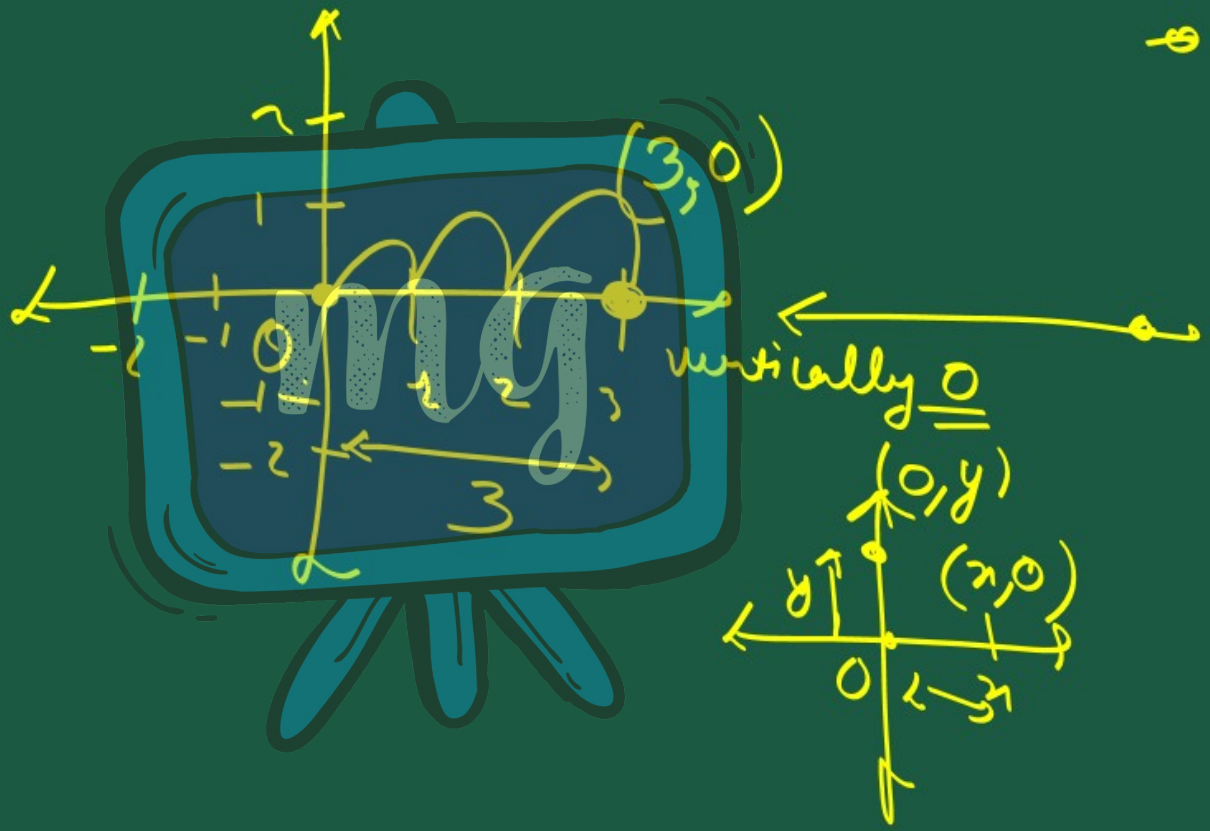
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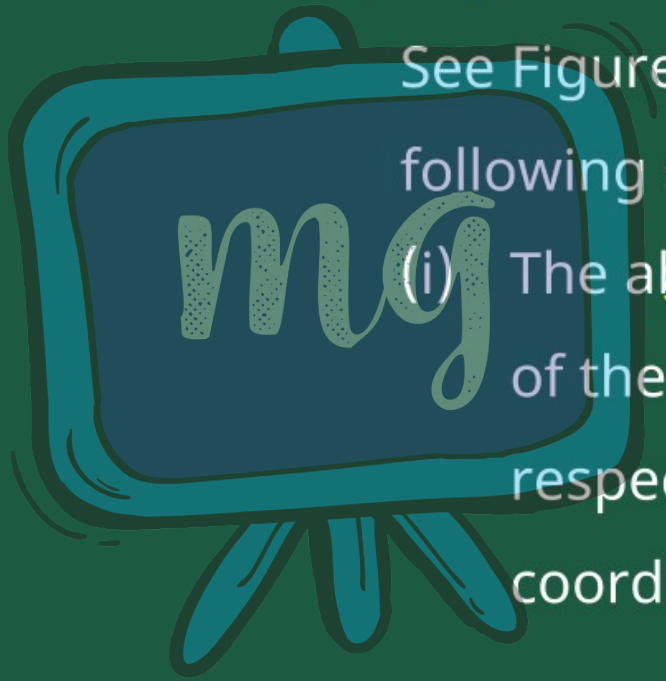
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Example –1



See Figure and complete the following statements:

(i) The abscissa and the ordinate of the point B are _4_ and _3_, respectively. Hence, the coordinates of B are (_4_, _3_).

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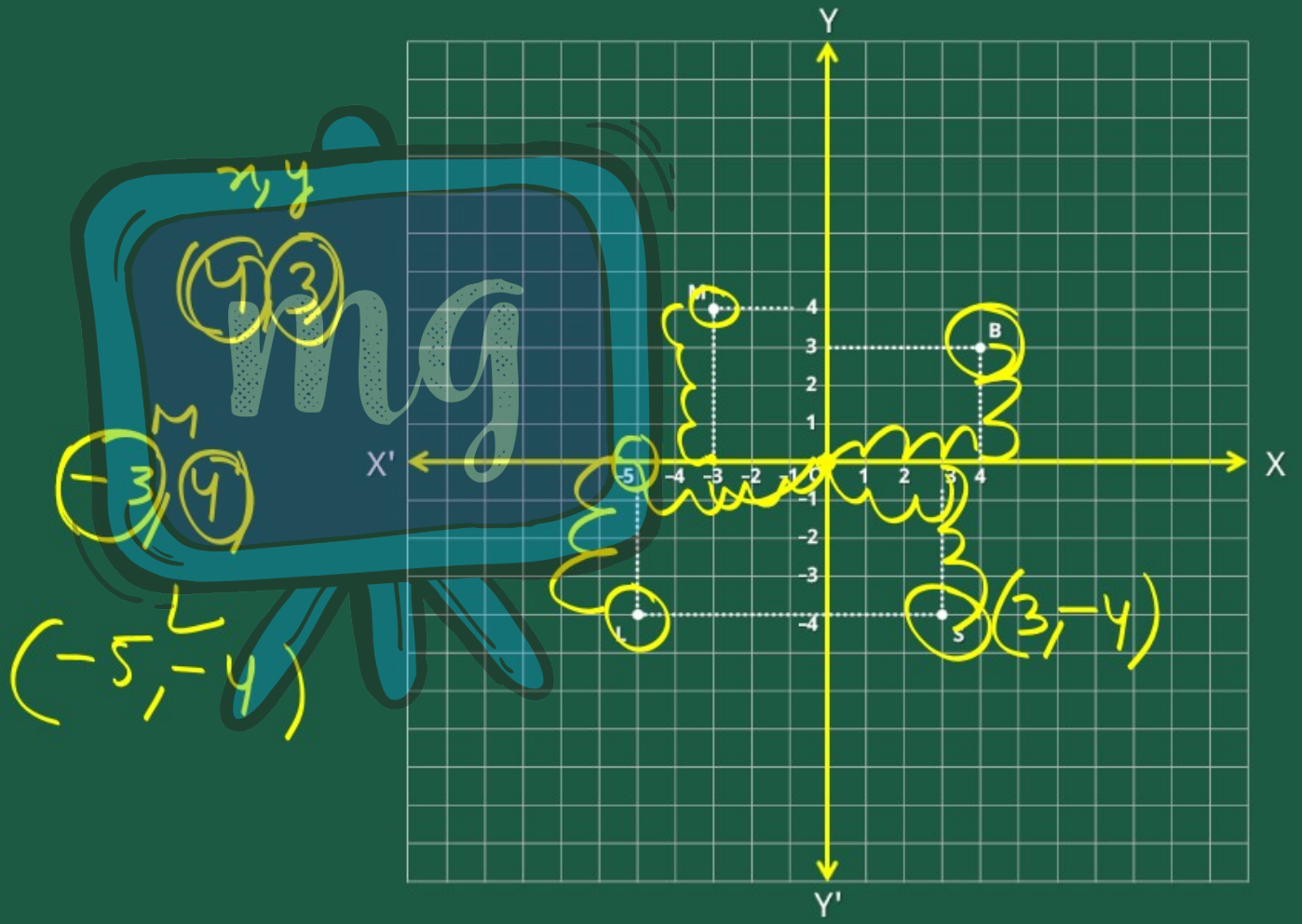
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(ii) The x-coordinate and the y-coordinate of the point M are -3 and 4, respectively.

Hence, the coordinates of M are $(-3, 4)$

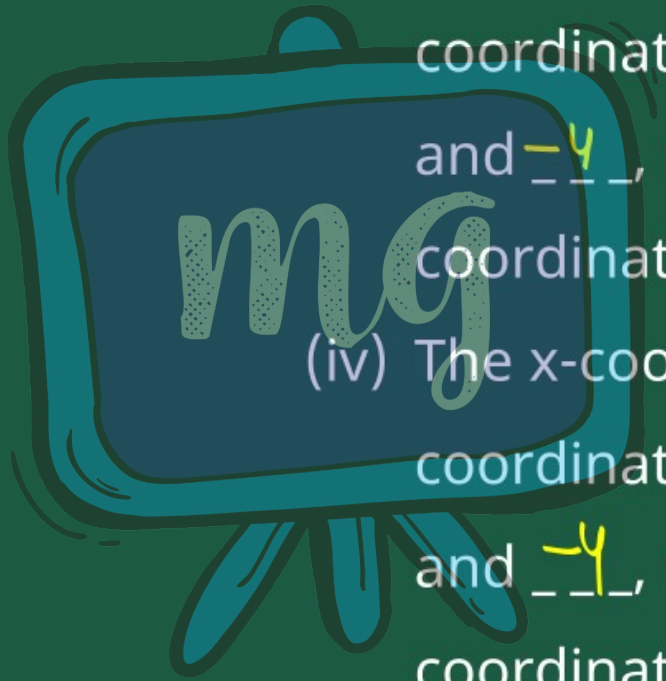
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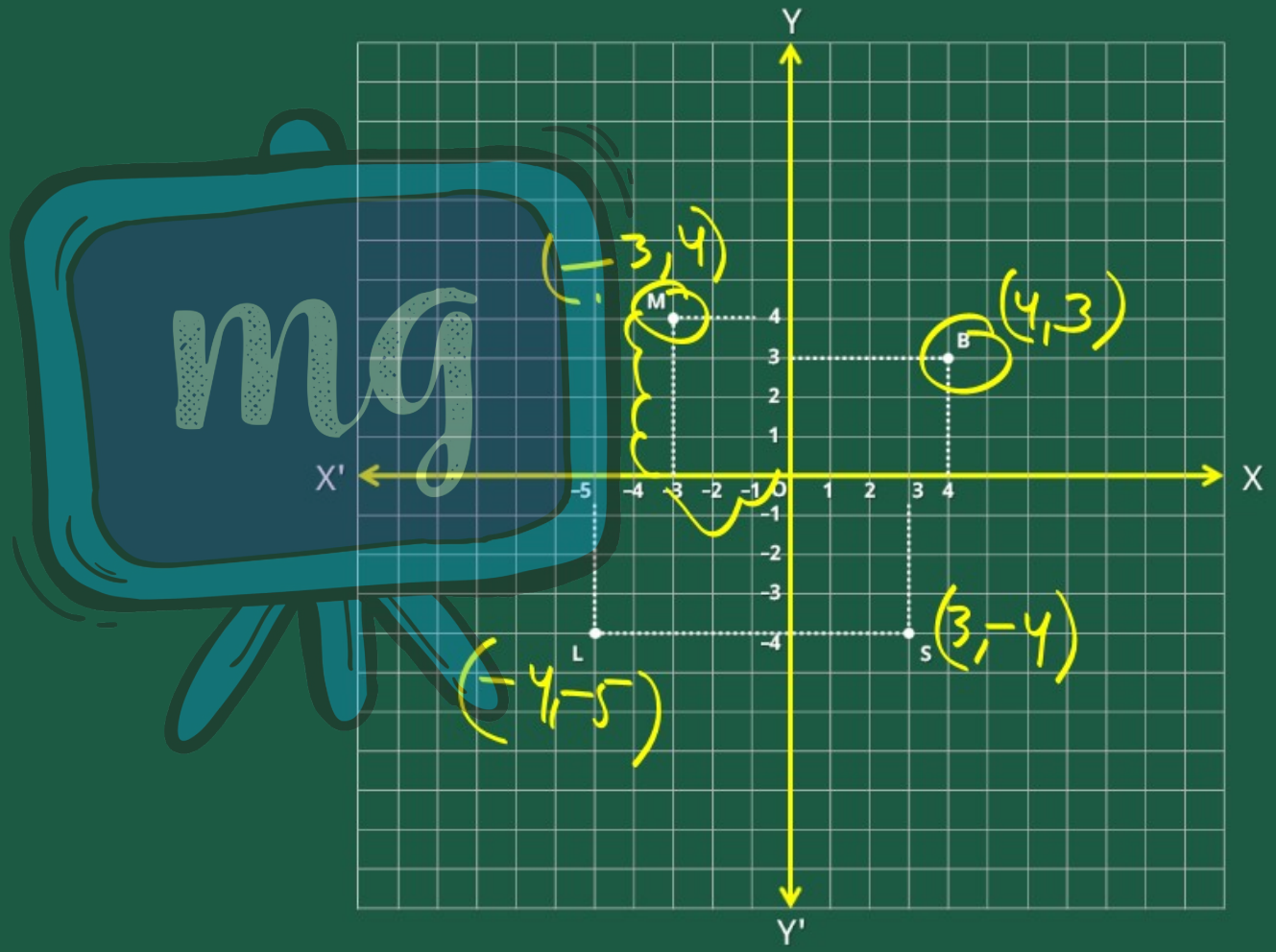


(iii) The x-coordinate and the y-coordinate of the point L are -5 and -4, respectively. Hence, the coordinates of L are $(-5, -4)$.

(iv) The x-coordinate and the y-coordinate of the point S are 3 and -4, respectively. Hence, the coordinates of S are $(3, -4)$.

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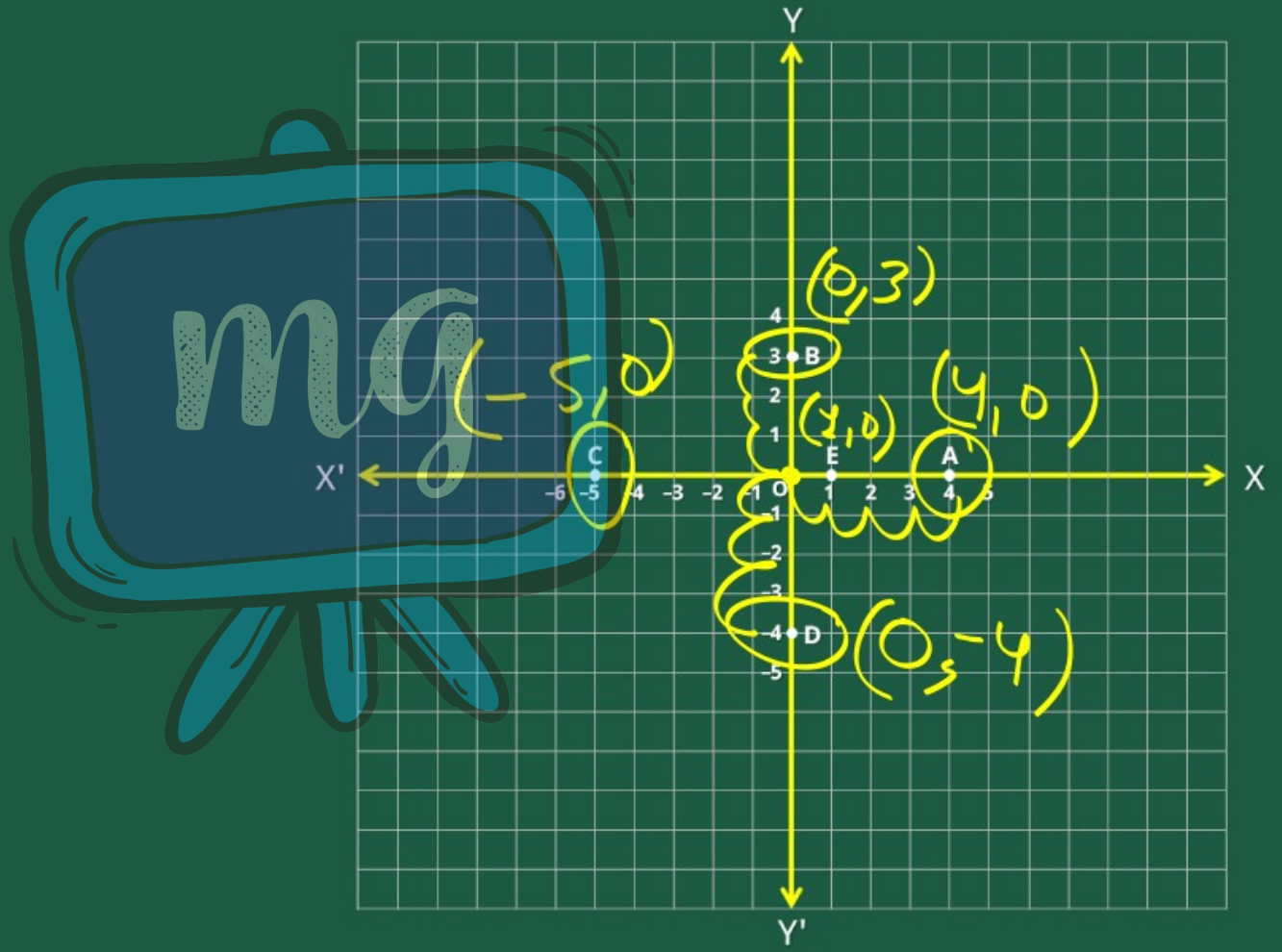
Example–2



Write the coordinates of the points marked on the axes in figure.

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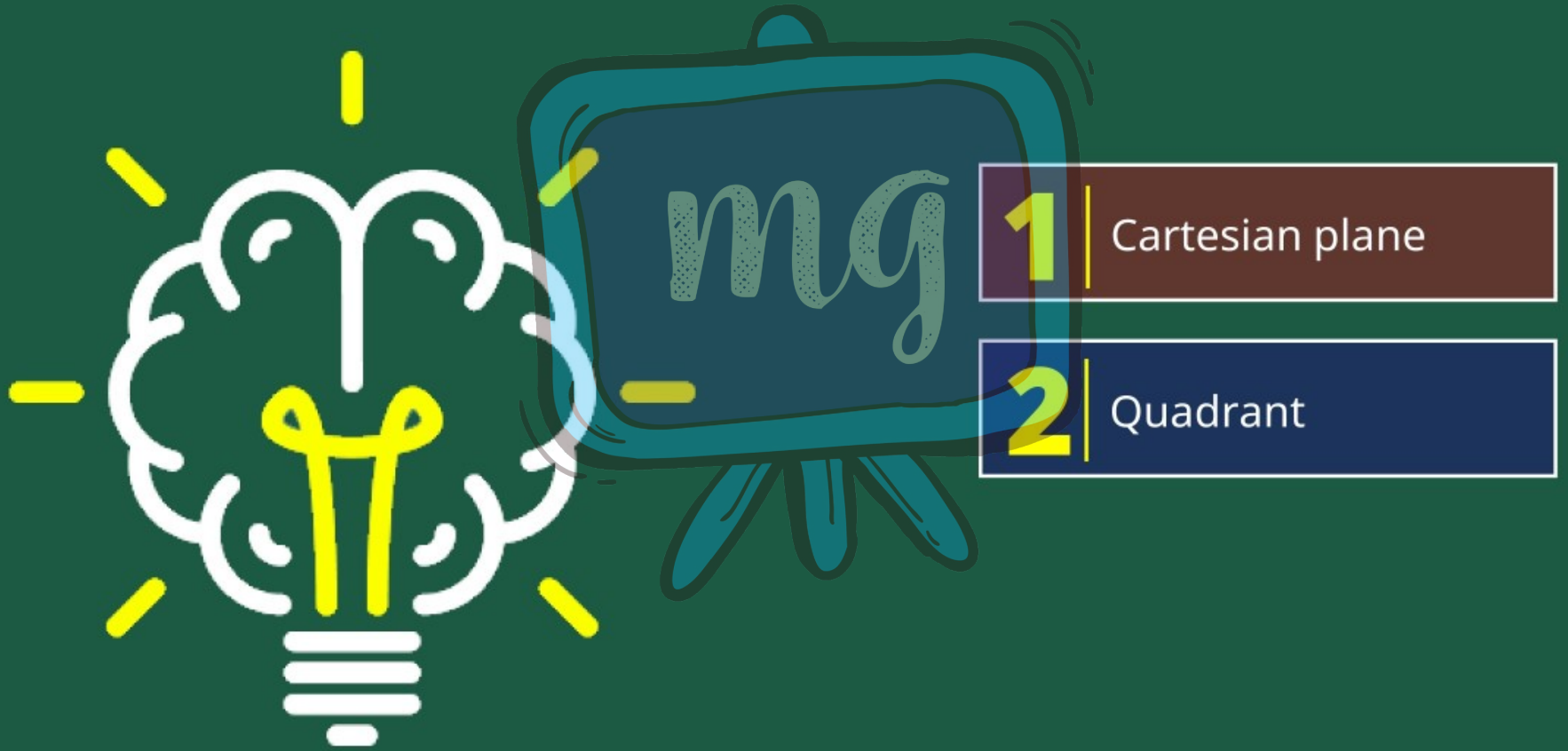
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LEARNING OUTCOMES

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ASSESSMENT

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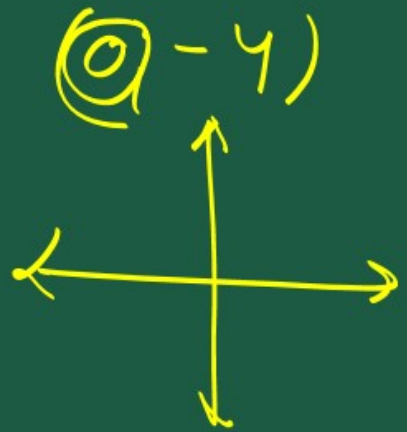
1 If the coordinates of a point are (0, –4), then it will be located at :

A X-axis

B Y-axis

C at the origin

D Between X-axis and Y-axis



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ASSESSMENT

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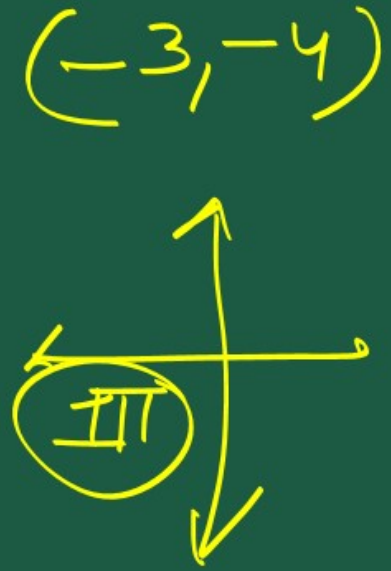
2 If the coordinates of a point are (–3, –4), then it will be located :

A first quadrant

B second quadrant

C third quadrant

D fourth quadrant



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3 In the second quadrant, the symbols of the abscissa and ordinate of a point are respectively.

A +, +

B +, −

C −, +

D −, −

