

Coordinate Geometry

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Coordinate Geometry

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Comprehensive study notes for

Coordinate Geometry

by

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(Math King of Katargam). Learn to locate points on a plane using coordinates and understand the Cartesian system.

1. The Cartesian Plane

The Cartesian plane consists of two perpendicular lines:

X-axis

: The horizontal line

Y-axis

: The vertical line

Origin

: The point where X and Y axes intersect (0, 0)

2. Quadrants

The axes divide the plane into four quadrants:

Quadrant

Sign of x

Sign of y

Example

I

+

+

(3, 4)

II

-

+

(-2, 5)

III

-

-

(-3, -1)

IV

+

-

(4, -2)

3. Coordinates of a Point

A point is written as (x, y) , where:

x-coordinate (Abscissa):

Distance from the Y-axis

y-coordinate (Ordinate):

Distance from the X-axis

Example:

Point $(3, -2)$ means 3 units to the right of origin and 2 units down.

Solved Examples

Example 1:

In which quadrant does $(-3, 5)$ lie?

Solution:

$x = -3$ (negative), $y = 5$ (positive) \rightarrow

Quadrant II

Example 2:

Write the coordinates of a point on the x-axis at a distance of 4 units from the origin.

Solution:

On the x-axis, $y = 0$. So point is

$(4, 0)$

or

$(-4, 0)$

Practice Questions

Plot the points $(2, 3)$, $(-1, 4)$, $(-3, -2)$, $(5, -1)$ on a Cartesian plane. State their quadrants.

Find the coordinates of a point whose ordinate is 5 and abscissa is -2.

What is the x-coordinate of any point on the y-axis?

Name the quadrant where both coordinates are negative.

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