Find a Hidden Picture By Plotting

OBJECTIVE

To find a hidden picture by plotting and joining the various points with given coordinates in a plane.

Materials Required

1. Cardboard
2. White paper
3. Graph paper
4. Scissors
5. Adhesive
6. Geometry box

Prerequisite Knowledge

Knowledge of Cartesian coordinate system.

Theory

For knowledge of Cartesian coordinate system refer to Activity 16.

Procedure

1. Take a cardboard of suitable size and paste a white paper on it.
2. Take a graph paper and paste it on the white paper.
3. Draw two coordinate axes X'OX and Y'OY. (see Fig. 17.1)

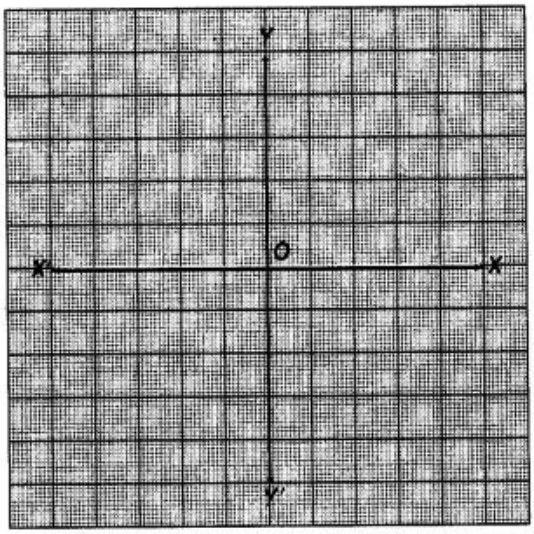

Fig. 17.1

4. Plot the points A, B, C,… with given coordinates (a, b), (c, d), (e, f), …. respectively, (see Fig. 17.2)

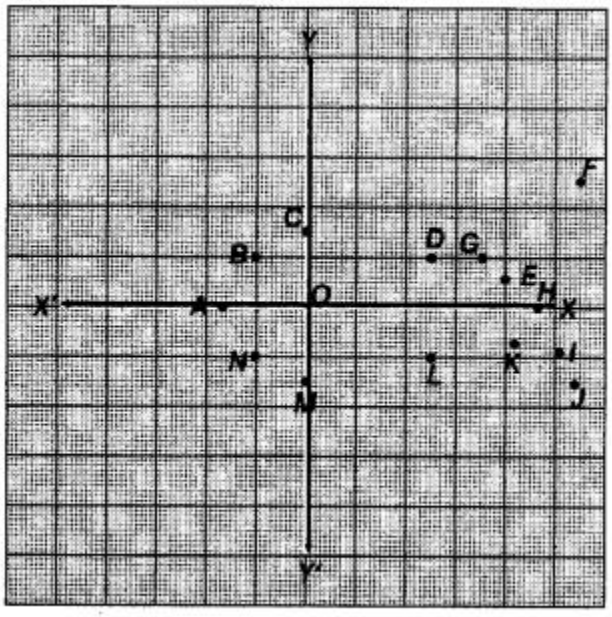

Fig. 17.2

5. Join the points in the given order say A → B → C → D → … → A. (see Fig. 17.3)

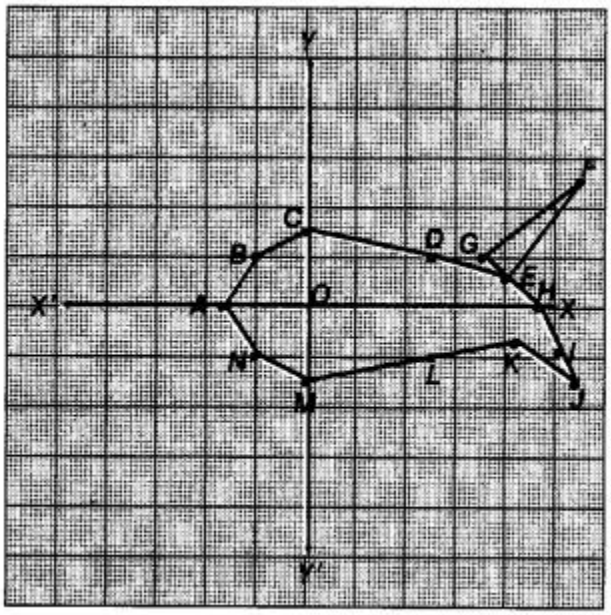

Fig. 17.3

Demonstration

By joining the points as per given instructions, a hidden picture of an ‘aeroplane’ is formed.

Observation

From Fig. 17.3
Coordinates points A, B,C,D, …….. ,
are …….. , …….. , …….. , …….. , …….. , …….. , …….. , and hidden picture is of ……..
.

Result

We have found the hidden picture by plotting and joining the various points with givèn coordinates in a plane.

Application

This activity is helpful in understanding the plotting of points in a cartesian plane which is further useful in preparing the road maps and sitting plan of the classroom.

Viva Voce

Question 1:
Are the ordinates of all the points on Y-axis zero?
Answer:
No, because their distance from X-axis is not zero.

Question 2:
Are the abscissae of all the points on the Y-axis zero?
Answer:
Yes, because their distance from Y-axis is zero as they lie on Y-axis.

Question 3:
What is the coordinates of a point at origin?
Answer:
(0,0)

Question 4:
x-coordinate and y-coordinate taken together are called ……..?
Answer:
cartesian coordinates

Question 5:
What is the maximum number of abscissa points on the X-axis?
Answer:
Infinite

Question 6:
What would be the value of (abscissa A – abscissa B), if two points are A(3, 4) and B (-2, 5)?
Answer:
3-(-2) = 3+ 2 = 5

Question 7:
What is the perpendicular distance of the point (6, 4) from the X-axis?
Answer:
4 units

Question 8:
Are there any points which do not lie in any of the quadrants? If yes, then where do they lie?
Answer:
Yes, they He on axes.

Question 9:
If any line is perpendicular to the X-axis, then which axis is parallel to it?
Answer:
If any line is perpendicular to the X-axis, then it is parallel to Y-axis.

Question 10:
Is it correct to say that horizontal axis is Y-axis and vertical axis is X-axis?
Answer:
No, because in standard coordinate system horizontal line is always X-axis and vertical line is always Y-axis.

Suggested Activity

Trace the corner points of a picture on graph paper and get some points. After joining them get the same picture.