# MATHS BASE MAKER

## Class 9 CBSE Mathematics | Ganita Manjari (2026)

## Chapter 1: Orienting Yourself – The Use of Coordinates

## PRACTICE WORKSHEET ( concepts + questions)

---

### PART 1: KEY CONCEPTS & RULES AT A GLANCE

• **1D vs 2D Systems:** In lower classes, position is determined along a single line (number line, 1D). In coordinate geometry, exact position on a flat surface (plane) is determined using two perpendicular number lines (2D Cartesian system).

• **Axes & Origin:** The horizontal number line is called the X-axis, and the vertical number line is called the Y-axis. The point of intersection is called the Origin O(0, 0).

• **Coordinates (Abscissa & Ordinate):** Every position on the Cartesian plane is represented by a unique ordered pair (x, y).

- Abscissa: Perpendicular distance from Y-axis (the x-coordinate).
- Ordinate: Perpendicular distance from X-axis (the y-coordinate).

**Example:** For point (2, 1): Abscissa = 2, Ordinate = 1.

• **The Four Quadrants & Sign Rules:**

| | |
|---|---|
| QUADRANT II (Top-Left)<br>Sign: (–x, +y) → (–, +)<br>Example: (–6, 3) | QUADRANT I (Top-Right)<br>Sign: (+x, +y) → (+, +)<br>Example: (1, 3) |
| QUADRANT III (Bottom-Left)<br>Sign: (–x, –y) → (–, –)<br>Example: (–6, –1) | QUADRANT IV (Bottom-Right)<br>Sign: (+x, –y) → (+, –)<br>Example: (1, –3) |

• **Points on the Coordinate Axes:** Any point lying on the X-axis has y = 0, represented as (x, 0) [e.g., (5, 0), (–3, 0)]. Any point lying on the Y-axis has x = 0, represented as (0, y) [e.g., (0, –2)].

• **Key Analytical Formulas:** For any two given points $P(x_1, y_1)$ and $Q(x_2, y_2)$:

- Distance Formula: $d = \sqrt{[(x_2 - x_1)^2 + (y_2 - y_1)^2]}$
- Midpoint Formula: $M = ((x_1 + x_2) / 2, (y_1 + y_2) / 2)$

**Watch the Complete Chapter 1 Video Solutions on YouTube**

https://youtu.be/f1DWMel8Ipo

## PART 2: PRACTICE QUESTIONS (CLASSROOM SITTING PLAN)

### Classroom Sitting Plan Reference Table:

| | | | |
|---|---|---|---|
| Student A: (–3, 4) | Student C: (–1, 4) | Student F: (2, 4) | **Row 4 (y = 4)** |
| Student B: (–4, 2) | Student D: (0, 2) | Student G: (3, 2) | **Row 2 (y = 2)** |
| Student E: (–2, 0) | Origin: (0, 0) | Student H: (2, 0) | **Row 0 (X-axis)** |

### Question 1: Distance Between Students

From the classroom sitting plan, find the distance between student B(–4, 2) and student D(0, 2).

**Final Answer: 4 units**

### Question 2: Position Verification Along a Line

From the sitting plan, is student D(0, 2) sitting between student B(–4, 2) and student G(3, 2)?

**Final Answer: Yes, student D is sitting between B and G along the line y = 2 (–4 < 0 < 3).**

### Question 3: Collinearity Test

Are students E(–2, 0), D(0, 2), and F(2, 4) sitting in a collinear line? Justify using slope or midpoint.

**Final Answer: Yes, students E, D, and F are in a collinear line (Slope ED = Slope DF = 1; D is also the midpoint of EF).**

**Watch the Complete Chapter 1 Video Solutions on YouTube**

https://youtu.be/f1DWMel8Ipo

---

**Visit: mathsbasemaker.com**