

Equation of a Line

Chapter 14: Equation of a Line · Topic 1

Key Concept

The slope (m) of a line, calculated as $(y_2 - y_1)/(x_2 - x_1)$, shows the steepness and direction of the line.

The y-intercept (c) is where the line crosses the y-axis, occurring when $x=0$.

We can find a line's equation given two points, or given one point and the slope, using the point-slope form: $y - y_1 = m(x - x_1)$.

Understanding the equation of a line is fundamental for coordinate geometry, helping us describe and analyse linear relationships graphically.

Quick Revision Notes

- Line equation: $y = mx + c$.
- m = slope; c = y-intercept.
- Slope = $(y_2 - y_1)/(x_2 - x_1)$.
- Y-intercept is where $x=0$.
- Point-slope form: $y - y_1 = m(x - x_1)$.
- This finds equations from a point and slope.
- This is fundamental for coordinate geometry.
- It describes linear relationships graphically.

Practice Questions

- 1 Find the slope between points (2,3) and (5,9).
- 2 Find the equation of a line with slope 2 and y-intercept 3.
- 3 Find the equation of a line through (1,4) with slope 3.
- 4 Graph a simple line equation.
- 5 Discuss what slope tells us about a line.
- 6 Solve a problem finding a line's equation from two points.