📊 Scatter Diagrams – Notes and Examples

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1. Drawing and Interpreting Scatter Diagrams

- A scatter diagram is a graph used to display values for two variables for a set of data.
- Each pair of values is plotted as a point (often marked with a **small cross** "×").
- The **horizontal axis (x-axis)** represents the **independent variable**.
- The **vertical axis (y-axis)** represents the **dependent variable**.

Example: If you're comparing **hours studied (x)** and **exam scores (y)**, plot each student's data as a point (x, y).

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2. Types of Correlation

- **Positive Correlation**: As x increases, y increases
  → e.g. More hours studied → higher exam scores
- **Negative Correlation**: As x increases, y decreases
  → e.g. More time on social media → lower exam scores
- **Zero Correlation**: No clear relationship between x and y
  → e.g. Height vs. exam scores

Tip: Look at the general pattern or "trend" of the points.

3. Line of Best Fit

A line of best fit helps us **see the trend** and **make predictions**.

- **Drawn by eye** (no calculations needed)
- Use a **ruler** to draw a **single straight line**
- Line should:
  - **Extend across all the plotted data**
  - Have a **roughly even number of points** above and below the line
  - Not necessarily pass through any actual point
- Used to **estimate values** (interpolation or extrapolation)

Example Use: If the line of best fit shows that 2 hours of study gives about 65 marks, you can predict a similar result for someone who studied that much.