| 110 Graphing	
W	**Objectives** 1. Explain why we use graphs 2. Identify the key features of a line graph 3. Distinguish between direct, indirect, and inverse graphs 4. Calculate gradient using data from graphs 5. Use data to construct graphs

Calcium carbide is a reactive solid. When water is added to it, a gas (ethyne) is formed.

An experiment was conducted to investigate the rate of reaction between calcium carbide and water at different temperatures. The table below shows the results for six different temperatures.

| Temperature of water in °C	21	32	40	49	56	60
Time to collect 100 cm³ of gas in seconds	100	59	38	24	14	10

1. Plot these results on the grid below and draw a curve of best fit.
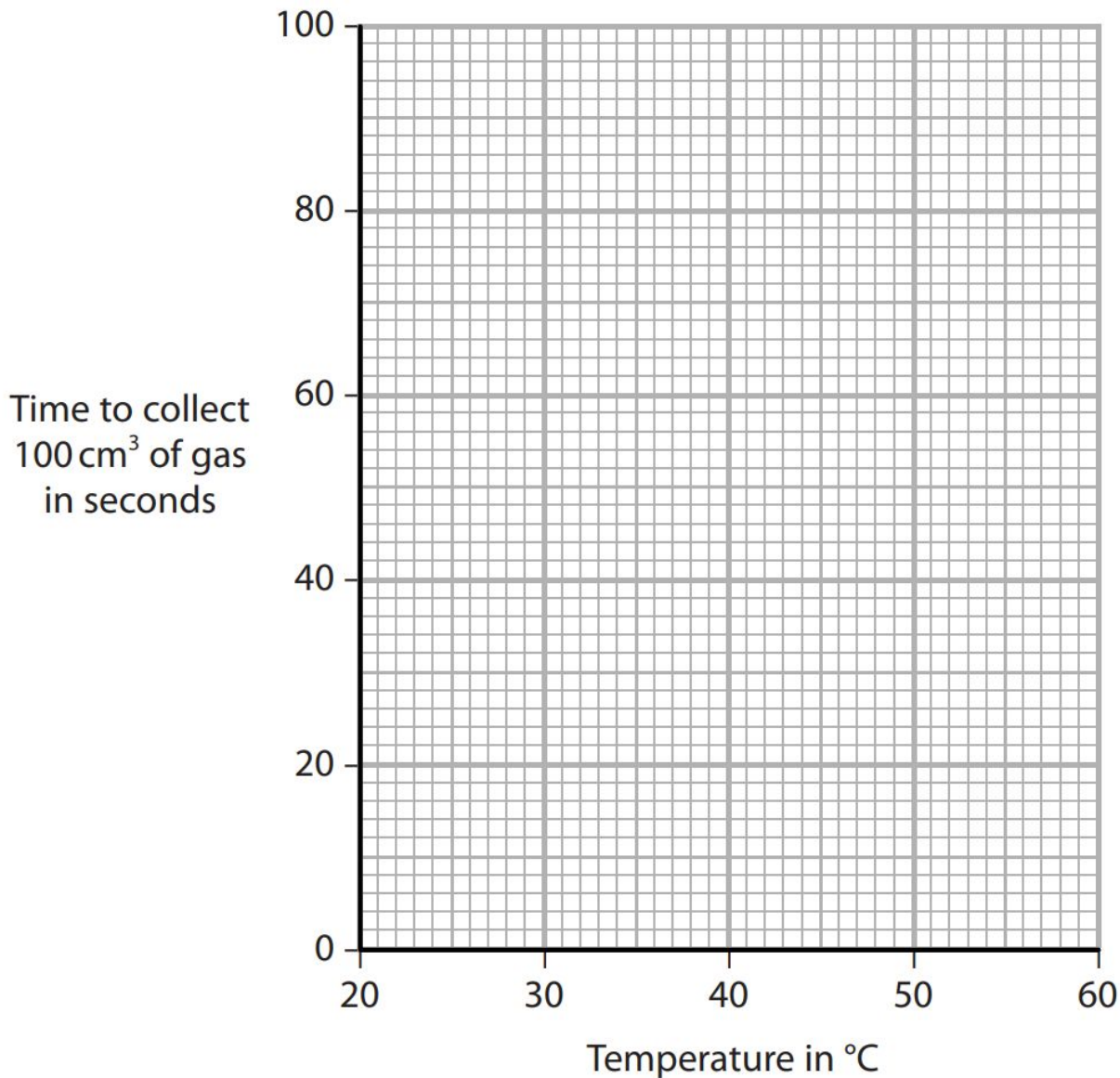
The data table shows the results of an experiment conducted to determine the rate of reaction between magnesium and two acids X and Y.

	Time in s	0	20	40	60	80	100	120
Acid X	Total volume of gas collected in cm³	0	6	11	15	18	20	21
Acid Y	Total volume of gas collected in cm³	0	12	22	30	37	43	48

2a. Plot the results for each acid on the grid.

2b. Draw a curve of best fit for each set of points.

2c. Label each curve as acid X or acid Y.

Total volume of gas collected in cm³

Time in s
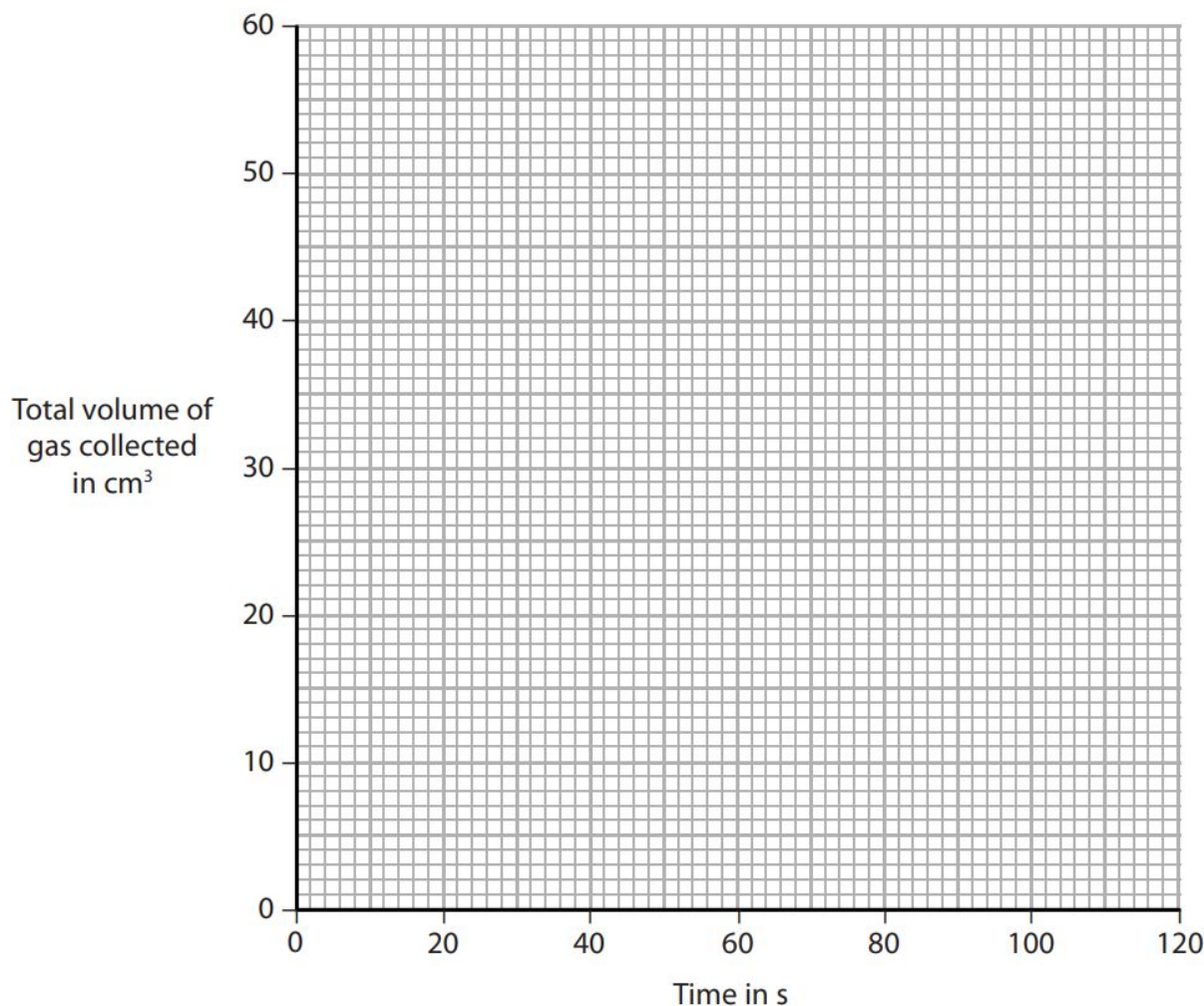
2d. Use the graph to find the total volume of gas collected at 70 s for acid X. _____
    Show on the graph how you obtained your answer.

2e. Using the expression below, calculate the average rate of the reaction for acid Y for the first 30s.

$$\text{average rate} = \frac{\text{total volume of gas collected}}{\text{time to collect the gas}}$$