

Rate of Reactions

Name: _____ ()

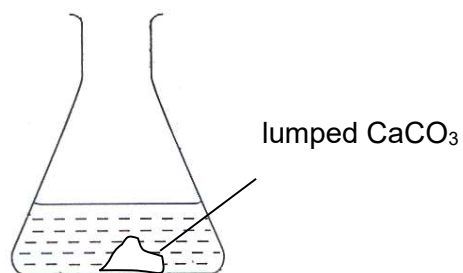
Class: _____

Date _____

Deadline _____

Answer all questions in the spaces provided.

1. A student carried out an experiment to investigate the rate of reaction between excess calcium carbonate and dilute hydrochloric acid.

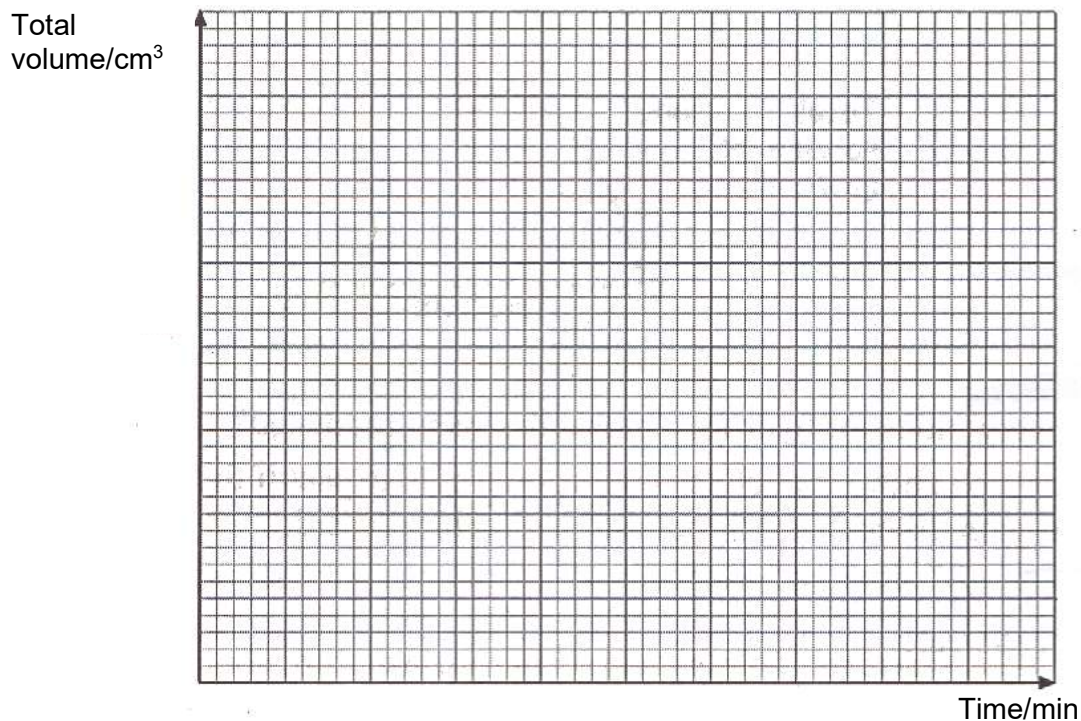


The results of the investigation is shown.

Time/min	10	20	30	40	50	60	70
Total volume/cm ³	13	24	33	41	45	48	48

- (a) Draw a diagram to show the apparatus that could be used to give the results above. Label your diagram accordingly.

- (b) Plot a graph of total volume collected against time on the axes given.
Label the your graph as *Flask A*.



- (c) Calculate the average speed of the reaction.
- (d) From the graph, find the time take for half the reaction to be completed.
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- (e) From the graph, find the speed of reaction at the 30th minute.

- (f) The reaction is said to have stopped an hour later since it started. Is the above statement true or false ? Explain the choice of your answer.

- (g) Using powdered CaCO_3 would increase the rate of the reaction. With a simple diagram, explain why this is so.

- (h) Sketch, on the same axes, the curve you would expect if the experiment was repeated using a more concentrated acid. Label the sketch as *Flask B*.