

Secondary 4 Science Physics
Practical Revision Paper 2025 (Self-Directed Learning)

Name: _____ () Class: _____ Date: _____

- 1** In this experiment, you will investigate how the amount of water in a container affects the periods of water wave oscillations.

You are provided with:

- a container
- a 30 cm ruler
- a 50 cm³ measuring cylinder
- a stopwatch

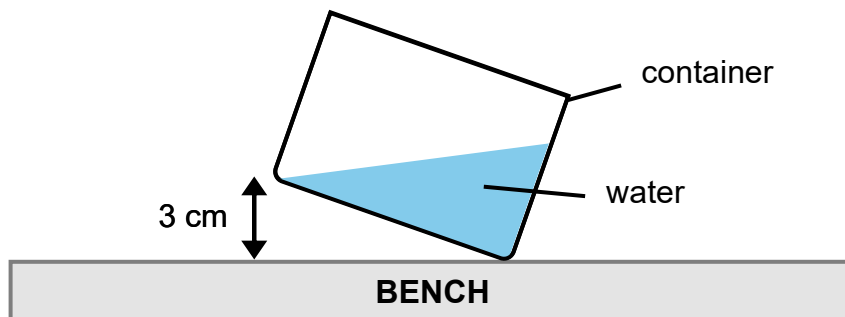


Fig. 1.1

Experiment 1

1. Use a 50 cm³ measuring cylinder to measure 50 cm³ of water, then pour it carefully into the container.
2. Hold one side of the container approximately 3 cm above the bench, then release it carefully so it falls to the bench.
3. Immediately after Step 2, start the stopwatch and record the average time taken, $\langle t \rangle$, for 20 oscillation of water.

Fig. 1.1 shows the set up for Experiment 1.

(a) Write down your recorded time, $\langle t \rangle$.

$\langle t \rangle =$ _____ s [2]

(b) Using your answer in (a), calculate the period of one oscillation, T .

$T =$ _____ s [2]

(c) Repeat Experiment 1 five times, each time using a different volume of water, and record all your results in the table below.

Volume of water / cm ³	20 oscillations			T / s
	t_1 / s	t_2 / s	$\langle t \rangle$ / s	
50				
100				
150				
200				
250				
300				

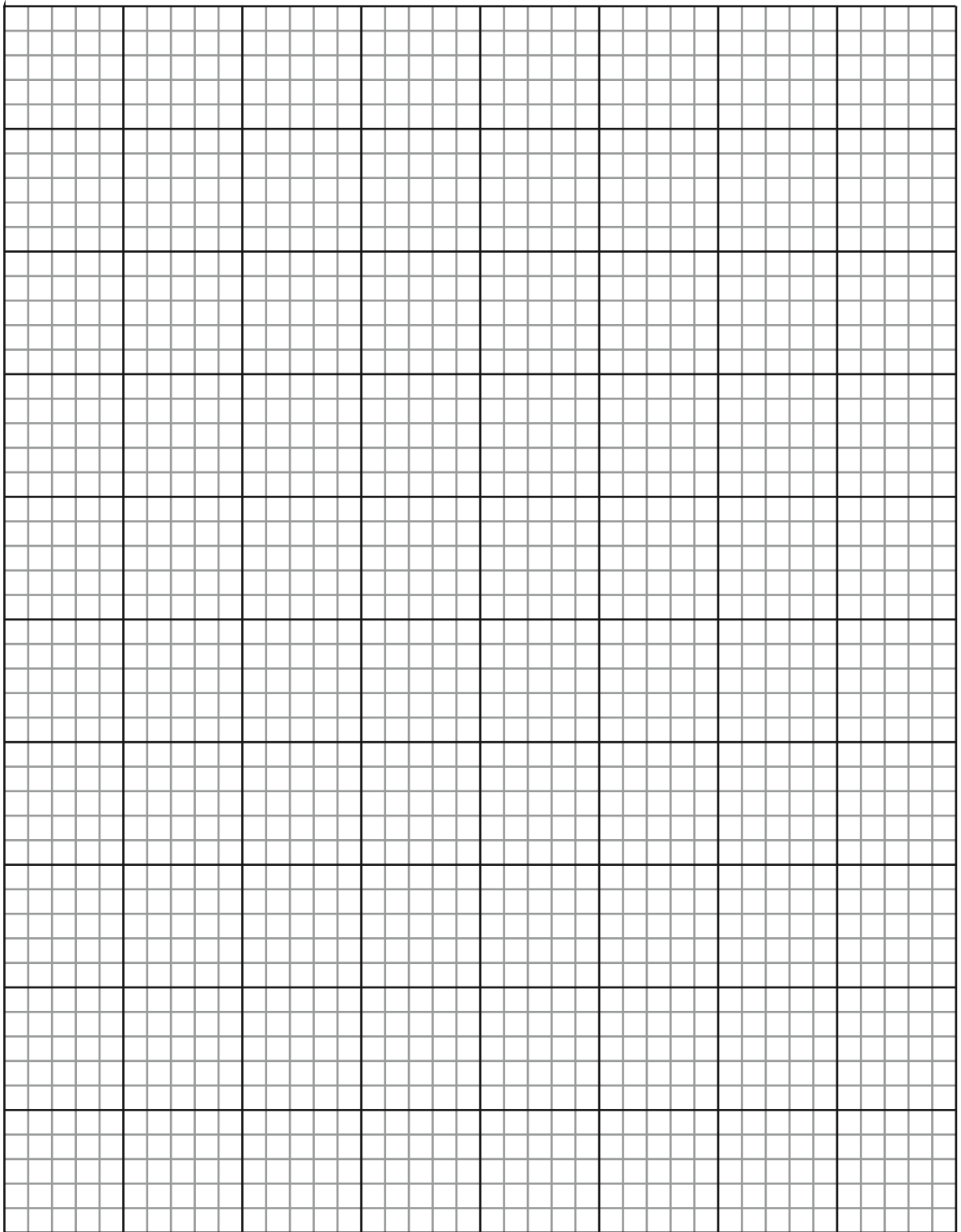
[6]

(d) On page 3, use your data to plot a suitable graph.

[4]

(e) Identify one source of error in your experiment which might affect the results you collected, and suggest a way to improve it.

[2]



[Total Marks:16]

End of Paper