

SAMPLE

This is a real Paper 6 I marked for a student, shown as they got it back, in their own handwriting. Their name is removed. Every mark and note is what they received.

YOUR OWN PAPER

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Here's your Paper 6.

0625/62, May/June 2026 (Paper 6 Alternative to Practical, Variant 2). Marked against Cambridge's published mark scheme for that paper, the way I marked scripts for Cambridge.

	Q1	Q2	Q3	Q4
38 / 40 YOUR MARK	10/11	10/11	11/11	7/7
36 / 40 WORST CASE				

That's an A on this paper, and well clear of the line: the A line for 0625/62 in June 2026 was 32 out of 40. Worst case: if your examiner was having a bad day, the two marks I gave you on the benefit of the doubt (cards C and F) could go, and 38 becomes 36, still an A. The graph question scored full marks: every point plotted to within half a small square (I measured them), a sensible scale, and R_x given as a whole number of ohms, which the examiner report says a lot of candidates got wrong. You followed every instruction about units and significant figures. You only lost two marks, and they're the same habit.

The one thing I'd fix before the exam

When a question asks about a technique, a fair test or a control variable, answer about **this** experiment's apparatus, not a general rule. Both of your lost marks went this way, and Q4 nearly made it three:

- **1(g)**: the question is about getting the water in beakers X and Y level. You wrote about reading the measuring cylinder. (note 1)
- **2(d)(ii)**: "black is a better absorber" is the general rule. The mark was for using what happened here: the black card was further from the lamp and still heated up faster. (note 2)
- **Q4** scored, but say exactly what stays the same. As written, the same material and the same volume would mean the same mass. (card F)

One more, and it takes 30 seconds: **print practice papers at "Actual size" or 100%**, not "Fit to page". Your copy came out at about 97%, which is why your ruler readings were short. (card A)

Where the other marks went

The blue numbers match the blue circles on your script.

1 1(g) 1 MARK

The question asks how to make sure the water levels in **beakers X and Y** are the same, so the answer has to be about both beakers. Either of these scores:

Lower my head until my eye is level with the water surfaces, and look at both surfaces at the same time.
or: measure the height of the water in each beaker with a ruler.

EXAMINER REPORT, JUNE 2026

"Vague references to avoiding parallax errors, without explaining that both surfaces should be viewed simultaneously at eye level, were insufficient."

2 2(d)(ii) 1 MARK

The question asks why your conclusion would still hold if the test were fair. Use the unfairness you found in (i):

The black card was further from the lamp (2.0 cm against 1.0 cm), so it received less radiation, but its temperature still rose faster (3.4 against 1.9 °C/min). At the same distance the difference would be even bigger.

EXAMINER REPORT, JUNE 2026

"Most candidates compared the absorbing properties of the black and white cards without referring to the fact that the distances of the cards from the lamp were unequal."

Marks you got, but I'd tighten the wording

These all scored. Two were marked generously (BOD), and the others are habits worth fixing. Don't give an examiner any excuse to take a mark away. They mark hundreds of scripts and won't puzzle over yours, so make every step visible and copy the paper's own conventions.

A 1(a)(i) and 2(a)(i), marked on your copy

Strictly, the mark scheme accepts only 5.2, 2.5 and 2.4 cm for the block, and 2.0 cm for d_2 . Your copy was printed at about 97% of full size: you measured the graph grid at 14.5 cm, and it's 15.0 cm on a full-size paper. On your copy, your 5.0, 2.4, 2.3 and 1.9 are right, so I've given both marks. In the exam the paper is full size, so measure exactly as you did here ("5.0", not "5", is to the nearest millimetre, as it should be), and print practice papers at "Actual size" or 100%.

B 1(b)(ii)

You crossed out the last 0 of "0.580" in your working. That's fine here, but in future it's worth crossing out the whole number and writing it again, just to be extra careful, so there's no doubt which value you mean.

C 3(c) line of best fit BOD

Your line scored, because the mark scheme accepts a line through four points with one below. But it goes through your top point, and every other point is on it or below it, so a stricter examiner could say it isn't balanced. Lay the ruler so the points are balanced either side. Here that gives an intercept nearer 0.32 and a gradient nearer 0.021, so R_X comes out at about 15 Ω instead of 17 Ω . Both are inside the range the mark scheme allows, but on another paper a line pinned to one point could push the answer out of range.

D 3(d) gradient

Good, big triangle, clearly marked. Write the two corners as coordinates, and give G to 2 significant figures. "0.02" looks like 1 s.f. even though your working gives exactly 0.0200:

Corners on the line: (0, 0.34) and (33, 1.00)

$$G = (1.00 - 0.34) / (33 - 0)$$

$$G = 0.66 / 33 = 0.020$$

E 4 (the table and the masses)

Your headings had the quantity and the unit, so the table scored. Write them the way the paper does, with a slash, as in its own Tables 2.1 and 3.1. Use realistic masses too: a 1 kg steel ball is over 6 cm across, and 5 kg is over 10 cm, which is hardly the "small metal ball" in the question. And time each fall more than once: the mark scheme ignores "repeat the experiment", but credits repeating each timing and taking the average.

Columns: m / g and t / s

Five balls from a few grams to a few tens of grams

Time each ball three times and use the mean

F 4 (control variables) BOD

I think you meant the balls should be the same size with the same surface, which is a fair pair of controls, so it scored. But "material of metal ball, volume of metal ball" reads as the same metal and the same volume, and mass = density x volume, so every ball would have the same mass and your experiment couldn't change its own variable. Say exactly what stays the same, and add the control that matters most here, the height you release the ball from:

Independent variable: mass of the ball (same diameter, different metals)

Keep constant: the height of release above the oil, the diameter of the ball, and its surface finish

Reading the marks on your script

✓ Mark awarded, placed where you earned it

✓ On the graph, one tick for each of the four marks

✗ Not awarded

ecf Error carried forward: right, using your own earlier answer

2/2 Your mark for that part

BOD Marked generously. See the green cards for the safer wording

In Q4, each mark is labelled with its point in the mark scheme (MP1 to MP7).

Good luck with the real one.

Rich



- 1 A student determines the density of a wooden block by two different methods.

Figure 1.1 shows a full-size diagram of the wooden block.

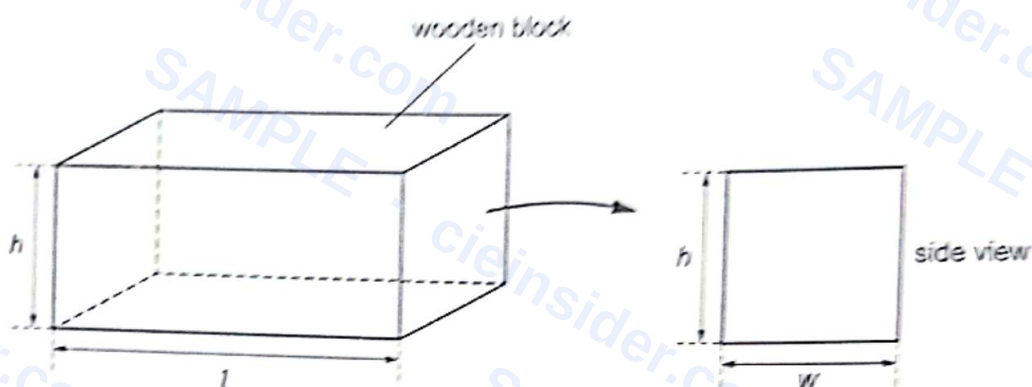


Figure 1.1

Method 1

- (a) (i) Measure the length l , the width w and the height h of the wooden block in centimetres to the nearest millimetre.

$l =$ 5.0 ✓ cm
 $w =$ 2.4 cm
 $h =$ 2.3 ✓ card A cm
 [2] 2/2

- (ii) Calculate the volume V_B of the wooden block. Use the equation:

$$V_B = l \times w \times h.$$

$V_B =$ 27.6 ✓ ecf cm³ [1] 1/1



3

- (b) (i) The student uses a balance to measure the mass M of the block.

The balance reading is shown in Figure 1.2.

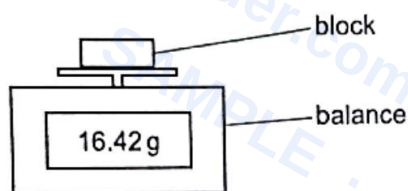


Figure 1.2

Record the mass M of the block to the nearest gram.

$M = 16$ g [1]

1/1

- (ii) Calculate a value ρ_1 for the density of the block. Use your results from 1(a)(ii) and 1(b)(i) and the equation:

$$\rho_1 = \frac{M}{V_B}$$

$$\frac{16}{27.6} = 0.580$$

$\rho_1 = 0.58$ g/cm³ [1]

1/1

Method 2

The student is provided with two beakers, X and Y. Each beaker contains 200 cm³ of water.

The student is also provided with a measuring cylinder containing water.

The measuring cylinder is shown in Figure 1.3.

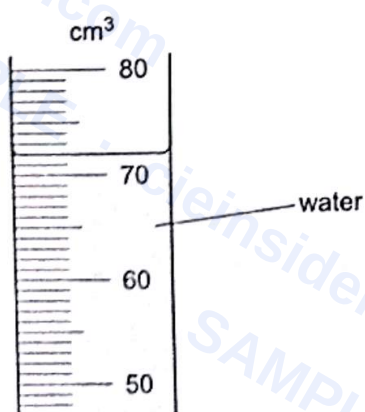


Figure 1.3

- (c) Record the volume V_1 of water in the measuring cylinder.

$V_1 = 72$ cm³ [1]

1/1



4

- (d) The student places the wooden block onto the surface of the water in beaker X. The level of the water in beaker X rises as the wooden block displaces water and floats. The student places beaker Y as close as possible to beaker X, as shown in Figure 1.4.

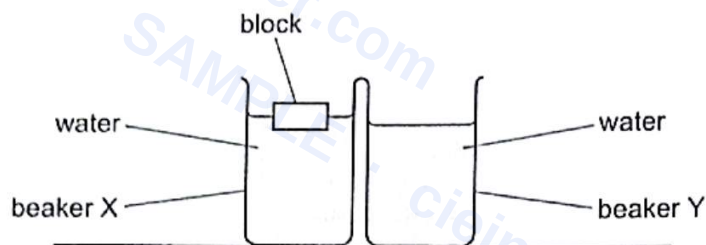


Figure 1.4

The student pours water from the measuring cylinder into beaker Y until the level of the water in beaker Y is the same as the level of the water in beaker X.

The water remaining in the measuring cylinder, after the water has been poured into beaker Y, is shown in Figure 1.5.

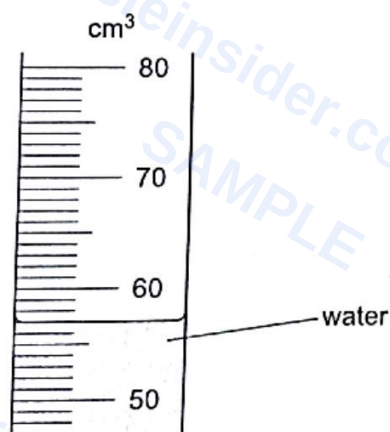


Figure 1.5

Record the volume V_2 of water remaining in the measuring cylinder.

$V_2 = 57 \text{ cm}^3$

Determine a value for the volume V of water displaced by the block. Use the equation:

$$V = V_1 - V_2$$

$72 - 57$

$V = 15 \text{ cm}^3$ ✓

1/1

* 0000800000005 *

DFD

5

- (e) A second value ρ_2 for the density of the block can be calculated using the equation:

$$\rho_2 = \frac{kV}{V_B}$$

where $k = 1.0 \text{ g/cm}^3$.

Use your answers to 1(d) and 1(a)(ii) to calculate ρ_2 .

$$\frac{1(15)}{27.6} = 0.54$$

$$\rho_2 = 0.54 \checkmark \text{ ecf } \text{ g/cm}^3 [1] \quad \boxed{1/1}$$

- (f) Two quantities can be considered to be equal within the limits of experimental accuracy if their values are within 10% of each other.

State whether your values of ρ_1 from method 1 and ρ_2 from method 2 can be considered equal.

Support your statement with a calculation.

calculation $\rho_1 = 0.58$ $\frac{0.58 - 0.54}{0.54} \times 100\% = 7.4\%$
 $\rho_2 = 0.54$ ✓

statement Yes, ρ_1 and ρ_2 are within the 10% of limits of accuracy. [2] 2/2

- (g) State **one** technique that the student uses in 1(d) of method 2 to ensure that the levels of the water in beakers X and Y are the same.

Read the scale reading of measuring cylinder at meniscus level perpendicularly at eye level [1] 0/1

[Total: 11]



- 2 A student compares the rates of temperature increase of two different coloured surfaces.

The student uses two thermometers, one of which has a piece of white card attached to its bulb, and one of which has a piece of black card attached to its bulb. Both pieces of card are identical, except for the colour of their surfaces.

The student clamps the thermometers so that the bulb of each thermometer is level with the filament of a lamp.

The lamp is switched off.

Figure 2.1 shows the apparatus.

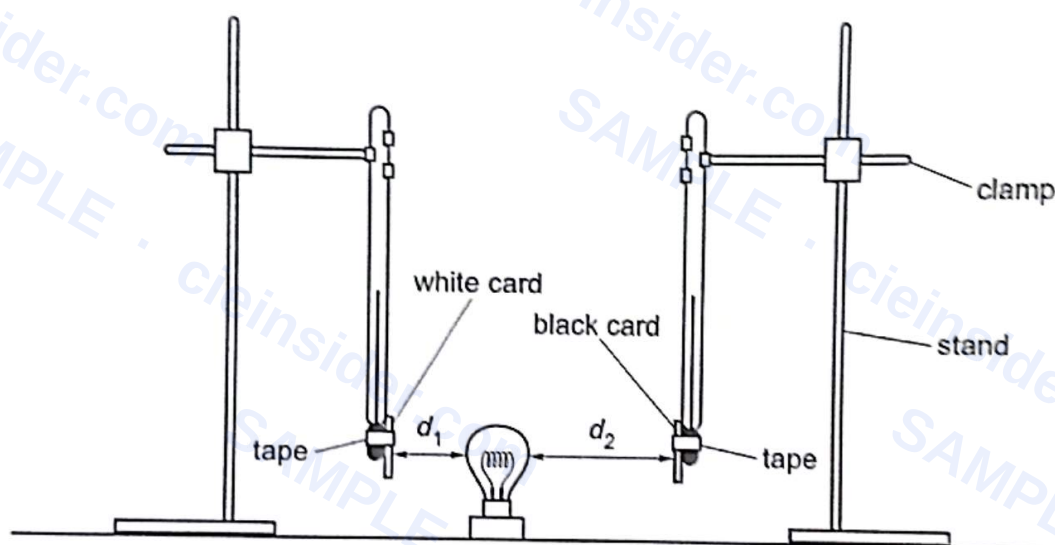


Figure 2.1

(a) The student:

- adjusts the distance d_1 between the lamp and the white card so that the card is 1.0 cm from the lamp
- adjusts the distance d_2 between the lamp and the black card.

(i) Measure, on Figure 2.1, the distance d_2 in centimetres to the nearest millimetre.

$d_2 = 1.9$ cm [1] ✓ card A



7

(ii) The student:

- records, in Table 2.1, the temperature shown by each thermometer at time $t = 0$
- switches on the lamp, and at the same time starts a stopwatch
- waits for 4.0 minutes
- switches off the lamp
- takes the reading on each thermometer.

The readings shown by the thermometers at $t = 4.0$ min are shown in Figure 2.2.

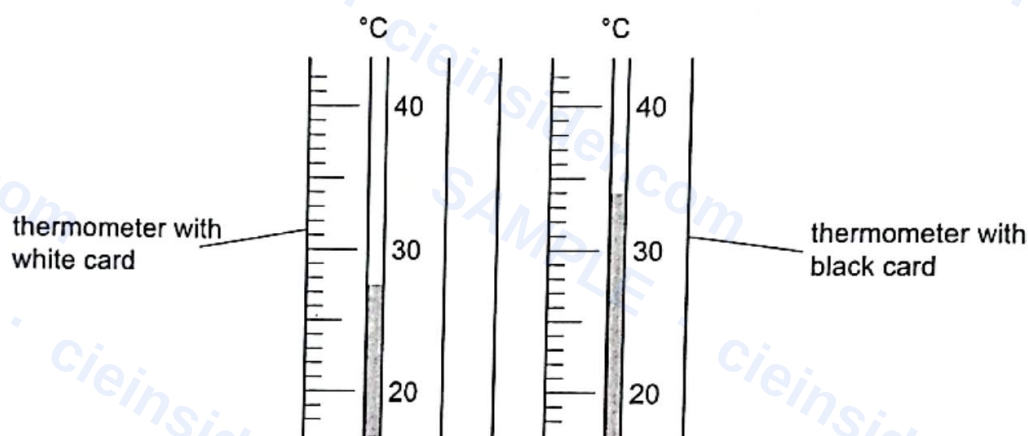


Figure 2.2

Record the readings in Table 2.1.

Table 2.1

time t/min	temperature of white card $\theta_W/^\circ\text{C}$	temperature of black card $\theta_B/^\circ\text{C}$
0	20.0	20.5
4.0	27.5 ✓	34.0 ✓

[2]

2/2

* 0000800000008 *

DFD



8

- (b) (i) Determine the temperature increase $\Delta\theta$ between $t = 0$ and $t = 4.0$ min for each card.

temperature increase of white card $\Delta\theta_W = 7.5$ °C

temperature increase of black card $\Delta\theta_B = 13.5$ °C [1] 1/1

- (ii) Calculate the rate of temperature increase of each card. Use the equation:

$$\text{rate of temperature increase} = \frac{\Delta\theta}{t}$$

Give your answers to 2 significant figures. Include the unit in your answer.

$$\frac{7.5}{4} = 1.9 \quad \frac{13.5}{4} = 3.4$$

rate of temperature increase of white card = 1.9 °C/min

rate of temperature increase of black card = 3.4 °C/min [3] 3/3

- (c) Write a conclusion which compares the rates of temperature increase of the two different coloured cards. Justify your answer using your values from 2(b)(ii).

Rate of temperature increase is greater on the black card than that of the white card. Rate of increase of black card is 3.4 °C/min, greater than 1.9 °C/min of white card's. ✓✓ [2] 2/2

- (d) The temperature of each card increases as it absorbs thermal radiation.

The procedure used does **not** produce a fair comparison of the absorbing properties of the two different coloured cards.

- (i) Suggest why the procedure does **not** produce a fair comparison.

Distance of d_1 and d_2 , which are the distance of the coloured cards to the lamp are not equal, which affects the results of experiment. ✓ [1] 1/1

- (ii) State why your conclusion in 2(c) would be the same, even if the comparison were fair.

Black is a better absorber of radiation than white colour. ✗ 2 [1] 0/1



- 3 A student investigates potential difference in an electric circuit and determines the resistance of an unknown resistor X .

The student assembles the circuit shown in Figure 3.1. The circuit consists of a resistor X connected in series with a resistor of resistance $R = 10\ \Omega$.

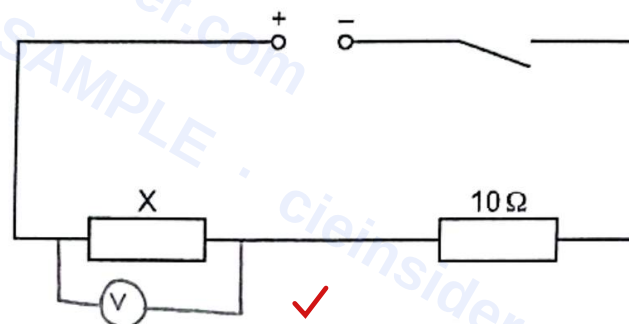


Figure 3.1

- (a) The student:

- closes the switch
- connects a voltmeter in parallel with resistor X
- measures the potential difference (p.d.) V across resistor X
- opens the switch.

- (i) On Figure 3.1, draw the voltmeter connected to measure the p.d. across resistor X . [1]

1/1



10

(ii) The voltmeter reading is shown in Figure 3.2.

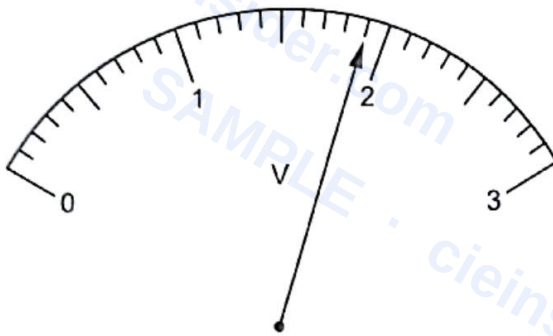


Figure 3.2

Record the voltmeter reading V in the second column of Table 3.1 for $R = 10\ \Omega$.

Table 3.1

resistance R/Ω	p.d. V/V	$\frac{1}{V}/\frac{1}{V}$
10	1.9 ✓	0.53
15	1.6	0.63
18	1.5	0.67
22	1.3	0.77
33	1.0	1.0

[1] 1/1

- (b) The student repeats 3(a) by replacing the $10\ \Omega$ resistor with resistors of resistance $R = 15\ \Omega$, $18\ \Omega$, $22\ \Omega$ and $33\ \Omega$ in turn. The student records the values of V in Table 3.1.

Calculate the value of $\frac{1}{V}$ for each value of V .

Record your values of $\frac{1}{V}$ in Table 3.1 to 2 significant figures.

[2] 2/2

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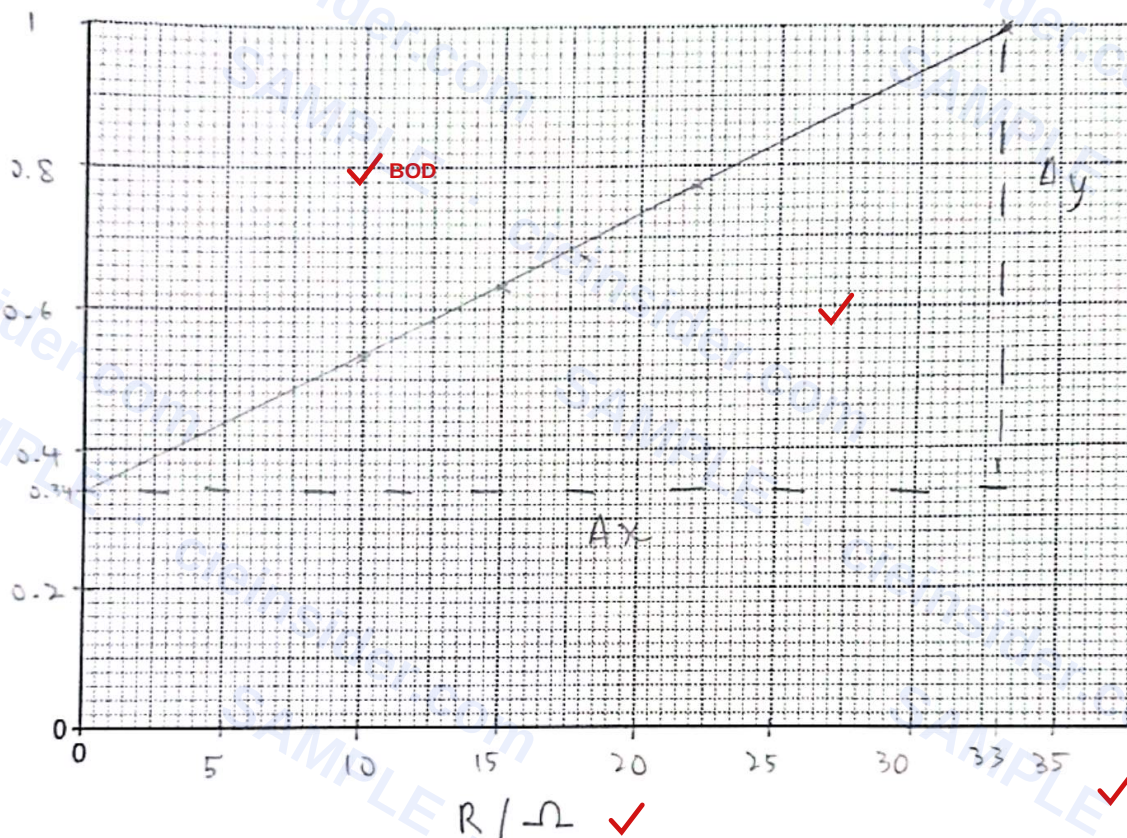
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11

- (c) Plot a graph of $\frac{1}{V} / \frac{1}{V}$ (y-axis) against R/Ω (x-axis). Start your axes at the origin (0,0).
Draw a best-fit straight line.



[4] 4/4

- (d) Determine the gradient G of your line. Show all your working and indicate on the graph the values you use.

$$\frac{\Delta y}{\Delta x} = \frac{0.34 - 0}{33 - 0}$$

$G = 0.02$ [1] 1/1

- (e) Extend your line so that it meets the y-axis.

Record the intercept c that your line makes with the y-axis.

$c = 0.34$ [1] 1/1

* 0000800000012 *

DFD



12

(f) The resistance R_X of resistor X can be calculated using the equation:

$$R_X = \frac{V}{I}$$

Use your answers to 3(d) and 3(e) to calculate R_X .

Record your answer to the nearest ohm.

$$\frac{0.34}{0.02} = 17$$

$R_X = 17 \Omega$ [1]
[Total: 11]



4 A student:

- fills a tall glass cylinder with oil
- holds a small metal ball some distance above the surface of the oil
- releases the ball from rest.

The student investigates the time t taken for the metal ball to fall between two lines marked on the side of the cylinder.

Plan an experiment to investigate how **one** variable affects the time t for this oil.

The arrangement of the apparatus is shown in Figure 4.1.

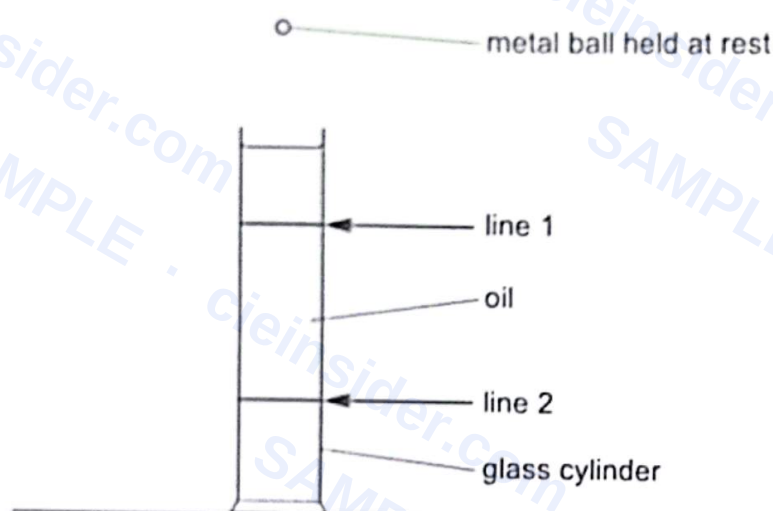


Figure 4.1

The apparatus available includes:

- a glass cylinder containing oil
- a selection of different metal balls
- a ruler.

In your plan:

- state the **one** variable you have chosen to investigate ✓
- name any other apparatus needed ✓
- give a brief description of the method, including what you will measure ✓
- state the key variables to be kept constant ✓
- draw a table, with column headings, to show how to display the readings (you are **not** required to enter any readings in the table)
- explain how to use the readings to reach a conclusion.

* 0000800000015 *

DFD

15

Additional Apparatus: Top pan balance, stopwatch ✓ MP2

Independent Variable: Mass of metal ball ✓ MP1

Dependent Variable: Time taken for metal ball to fall between two lines

Control Variable: Material of metal ball, volume of metal ball ✓ MP4 BOD

Steps: ① Prepare 5 metal balls of different mass (1 kg, 2 kg, 3 kg, 4 kg, 5 kg)

② Drop the 1 kg metal ball into the measuring cylinder with oil

③ Start stopwatch when ball falls through line 1

④ Stop stopwatch when ball falls through line 2

⑤ Repeat steps ① - ④ with the other different masses ✓ MP3

Repeat experiment twice more and calculate mean results.

Conclusion: Plot graph of time taken t (s) for metal ball to fall between two lines marked on the side of the cylinder against mass of metal ball (kg). (Compare the results.) ✓ MP6

Table:

Mass of metal ball (kg)	Time taken time t (s)
1	
2	
3	
4	
5 ✓ MP7	

[7]

717

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What comes back

- Your paper marked against the published mark scheme, with every mark placed where it was earned or lost.
- For every lost mark: the words that cost it, what the scheme needed instead, and the physics worked through to the right answer.
- The patterns across the whole paper, and the one thing I'd fix first.

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