

IGCSE Cambridge Topical Past Papers

PHYSICS

0625 Paper 3

2017 — 2025

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1 - (0625/31_Summer_2017_Q1)



A pipe drips water into an empty glass jar. A student takes measurements to find how fast the water is rising up the jar. Fig. 1.1 shows the arrangement.

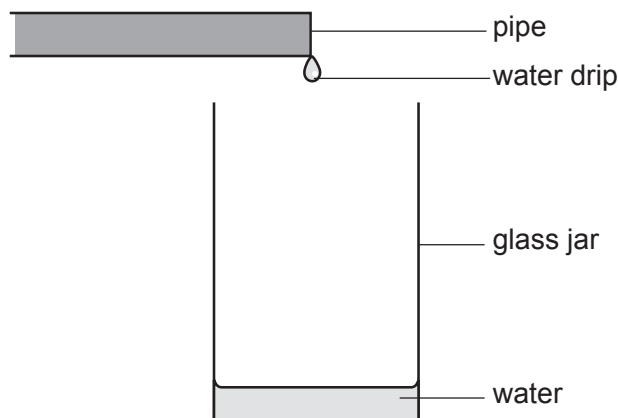


Fig. 1.1

- (a) The student measures the depth of the water every minute. State the **two** pieces of equipment that she uses.
1.
 2.
- [2]
- (b) The student records her observations in a table. She then plots a graph using the axes shown in Fig. 1.2.

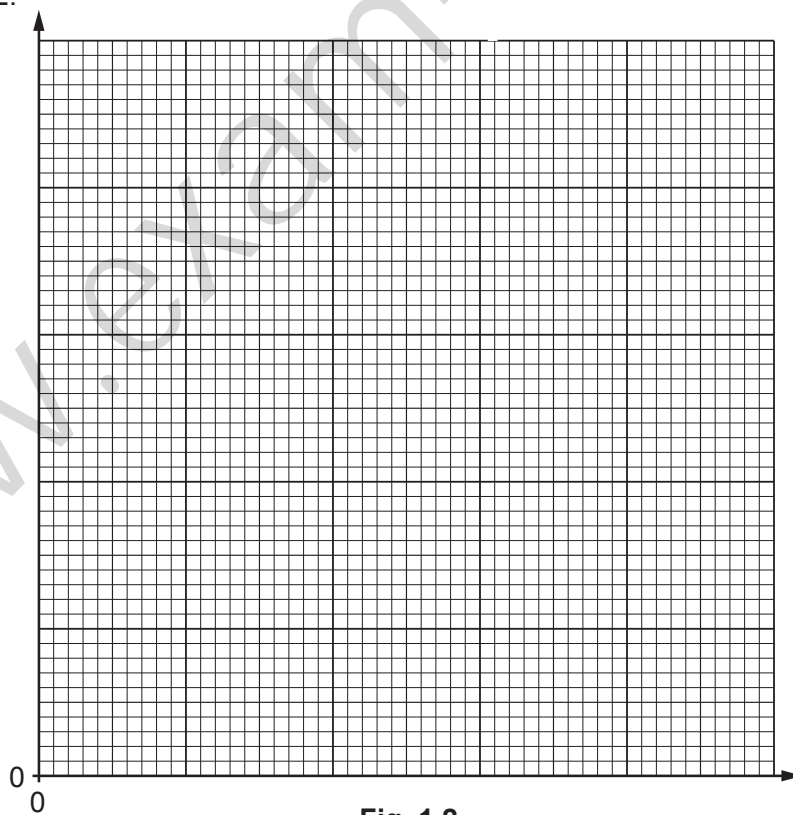


Fig. 1.2

- (i) On Fig. 1.2, label both axes with title and unit. [2]
- (ii) The water rises up the jar at a constant rate.

Draw a line on Fig. 1.2 to show the student's graph. Start the line from the time when the jar is empty. [2]

- (c) A puddle of water forms on the ground. The average depth of the water is 2.5 mm.

Determine the average depth of the water in m.

depth = m [2]

[Total: 8]

2 - (0625/32_Summer_2017_Q1)



Fig. 1.1 shows students about to start a 50.0 m swimming race.

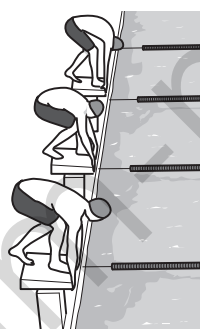


Fig. 1.1

- (a) The length of the pool is 50.0 m.

Name a suitable piece of equipment that could be used to measure the length of the pool.

.....[1]

- (b) The race starts and the students swim to the end of the 50.0 m pool.

Fig. 1.2 shows the times recorded on the stop watches for the winner and the swimmer in second place.

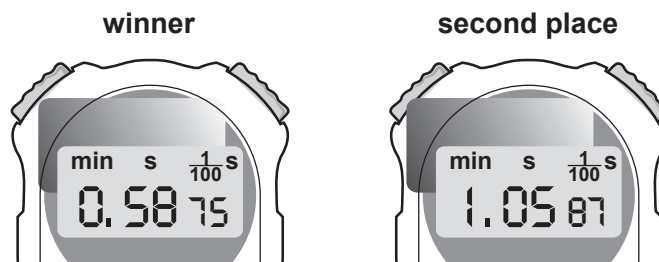


Fig. 1.2

- (i) Determine the time taken by the winner to swim 50.0 m. Use information from Fig. 1.2.

winner's time = s [1]

- (ii) Calculate the average speed of the winner.

average speed = m/s [2]

- (iii) Calculate the time difference between the winner and the swimmer in second place.

time difference = s [1]

[Total: 5]

3 - (0625/32_Summer_2017_Q2)

ANSWER

- (a) The walls of a room are to be painted.

A tin of paint has a total mass of 7000 g and a volume of 5000 cm³.

The empty tin has a mass of 500 g.

- (i) Determine the mass of the paint.

mass of paint = g [1]

- (ii) Calculate the density of the paint. Include the unit.

density = [3]

- (b) The painter drops a brush into the tin of paint. The brush floats.

Suggest why the brush floats.

.....
 [1]

[Total: 5]

4 - (0625/33_Summer_2017_Q1)



A student measures a book.

(a) He measures the length of the book, as shown in Fig. 1.1.

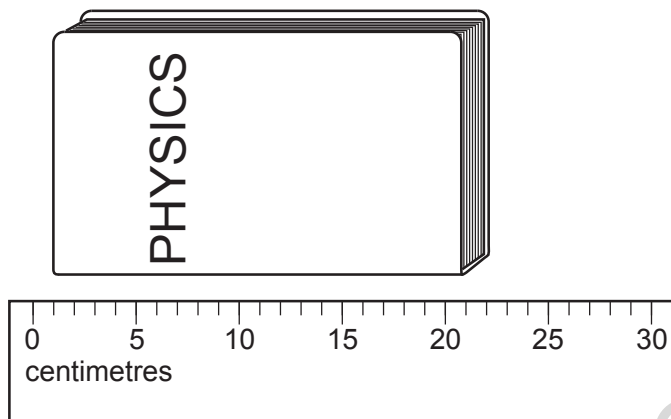


Fig. 1.1

The student records his measurement.

length of book = 19.9cm

His measurement is not accurate.

Describe **two** ways that the student can improve the accuracy of his measurement.

1.
.....
2.
.....

[2]

(b) The book contains 200 thin sheets of paper.
The student wants to find the average (mean) thickness of a sheet of paper in the book.

Describe how he can determine such a small distance using only a ruler.

.....
.....
.....
.....
.....

[3]

(c) The book has a mass of 400g.

Calculate the weight of the book. Include the unit.

weight =[4]

[Total: 9]

5 - (0625/31_Winter_2017_Q1)



A student clamps a metre rule to the end of a bench, as shown in Fig. 1.1. He attaches a mass to the end of the rule.

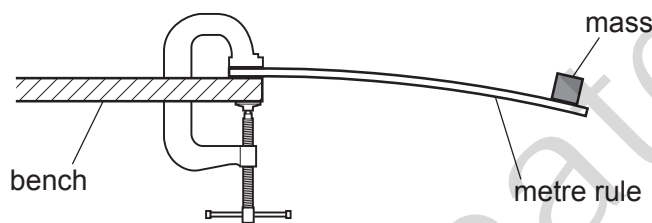


Fig. 1.1

The student displaces the end of the rule by a small distance. The rule oscillates up and down. The student measures the time for ten complete oscillations.

(a) State the name of a measuring device for timing the oscillations.

..... [1]

(b) State a reason why the student measures the time for ten oscillations, rather than for one.

..... [1]

(c) The student repeats the procedure. His results are shown in the table.

results	time for ten complete oscillations/seconds
1st	3.93
2nd	4.07
3rd	3.55
4th	3.99

(i) One of the results is incorrect. On the table, draw a ring around the incorrect result. [1]

(ii) Calculate the average value for the time for ten complete oscillations.

average time = s [2]

- (iii) Determine the time for one complete oscillation. State your answer to two significant figures.

time = s [1]

[Total: 6]

6 - (0625/31_Winter_2017_Q3)

ANSWER

Fig 3.1 shows a warning marker floating on the surface of a lake.

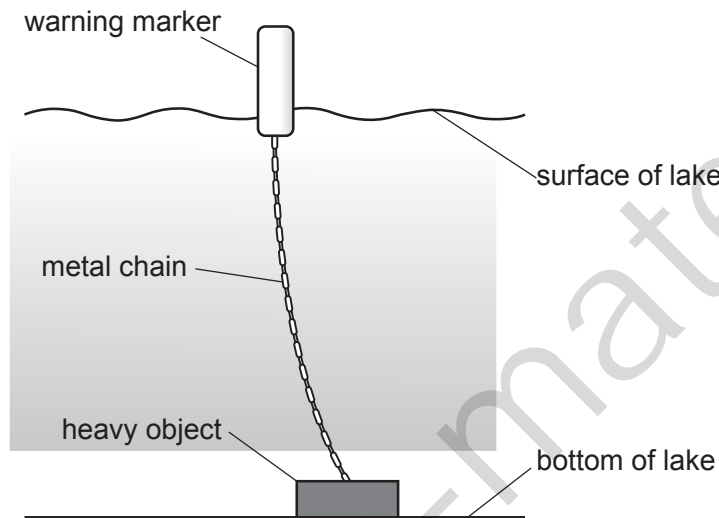


Fig. 3.1

The marker is attached by a metal chain to a heavy object on the bottom of the lake.

- (a) Fig. 3.2 shows the forces acting on the marker at one moment in time.

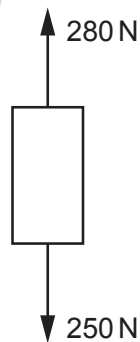


Fig. 3.2

Calculate the resultant force on the marker.

resultant force = N

direction =

[2]

(b) Fig. 3.3 shows part of the metal chain. It is made from small metal loops.

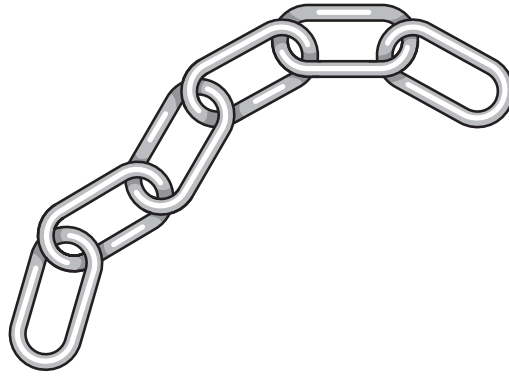


Fig. 3.3

A damaged loop is removed from the chain. Describe a method to determine the density of the metal from which the loops are made.

.....

.....

.....

.....

.....

.....

.....


.....

[5]


[Total: 7]

1 - (0625/31_Summer_2017_Q1) 


(a)	rule(r)	B1
	(stop) watch/clock	B1
(b)(i)	x-axis labelled time/t with minutes	B1
	y-axis clearly labelled depth/distance/height with mm/cm/m	B1
(b)(ii)	line drawn from the origin	B1
	single straight diagonal line	B1
(c)	1000 mm = 1 m OR $2.5 \div 1000$	C1
	0.0025 (m) OR 2.5×10^{-3}	A1
Total:		8

2 - (0625/32_Summer_2017_Q1) 


(a)	flexible rule/tape measure/measuring tape	B1
(b)(i)	58.75 (s)	B1
(b)(ii)	speed = distance \div time in any form	C1
	0.85 (m/s)	A1
(b)(iii)	7.12 (s)	B1
Total:		5

3 - (0625/32_Summer_2017_Q2) 


(a)(i)	6500 (g)	B1
(a)(ii)	density = mass \div volume in any form	B1
	1.3	A1
	g/cm ³	B1
(b)	density (of brush) is less (than) density of paint	B1
		Total:
		5

4 - (0625/33_Summer_2017_Q1) 

(a)	any two from: use a ruler with mm (scale) ruler close(r) to book/no space between book and ruler have zero on ruler at one end of book take reading with eye in line with end of book owtte	B2
(b)	use large number of pages i.e. more than 50	B1
	measure (total) thickness (with ruler)	B1
	divide (total) thickness by number of pages	B1
(c)	convert g to kg or 400 \div 1000	B1
	Weight = mass \times gravitational field strength in any form	C1
	(weight =) 4.0	A1
	(unit) N or newtons	B1
		Total:
		9

5 - (0625/31_Winter_2017_Q1)


(a)	stopwatch or stopclock	B1
(b)	improved accuracy	B1
(c)(i)	circle around 3rd OR 3.55	B1
(c)(ii)	$3.93 + 4.07 + 3.99 = 11.99$	C1
	$(11.99 \div 3 =) 4.0$ (s)	A1
(c)(iii)	0.40 (s) OR (c)(ii) $\div 10$	B1

6 - (0625/31_Winter_2017_Q3)


(a)	subtraction of forces to obtain resultant or 30 (N)	B1
	up(wards)	B1
(b)	any five from: measure mass (on top pan balance) part fill measuring cylinder with water (and note volume) submerge link in measuring cylinder determine increase in volume increase in volume = volume of link use density = mass \div volume Only award full marks for a viable method	B5