Topical Past Paper Questions Worksheets

IGCSE Physics (0625) Paper 3

[Core]

Exam Series: Feb/Mar 2017 – May/Jun 2023

Format Type A:
Answers to all questions are provided as an appendix

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Introduction

Each Topical Past Paper Questions Compilation contains a comprehensive collection of hundreds of questions and corresponding answer schemes, presented in worksheet format. The questions are carefully arranged according to their respective chapters and topics, which align with the latest IGCSE or AS/A Level subject content. Here are the key features of these resources:

1. The workbook covers a wide range of topics, which are organized according to the latest syllabus content for Cambridge IGCSE or AS/A Level exams.
2. Each topic includes numerous questions, allowing students to practice and reinforce their understanding of key concepts and skills.
3. The questions are accompanied by detailed answer schemes, which provide clear explanations and guidance for students to improve their performance.
4. The workbook's format is user-friendly, with worksheets that are easy to read and navigate.
5. This workbook is an ideal resource for students who want to familiarize themselves with the types of questions that may appear in their exams and to develop their problem-solving and analytical skills.

Overall, Topical Past Paper Questions Workbooks are a valuable tool for students preparing for IGCSE or AS/A level exams, providing them with the opportunity to practice and refine their knowledge and skills in a structured and comprehensive manner. To provide a clearer description of this book's specifications, here are some key details:

- Title: Cambridge IGCSE Physics (0625) Paper 3 Topical Past Paper Questions
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0625
- Years covered: Feb/Mar 2017 – May/Jun 2023
- Paper: 3
- Number of pages: 837
- Number of questions: 522

Contents

Chapter 1

Motion, forces and energy

1.1 Physical quantities and measurement techniques

1. 0625_s22_qp_31 Q: 1

Fig. 1.1 shows a dripping tap and a measuring cylinder. The water drops all have the same volume. The drops fall from the tap at equal time intervals.

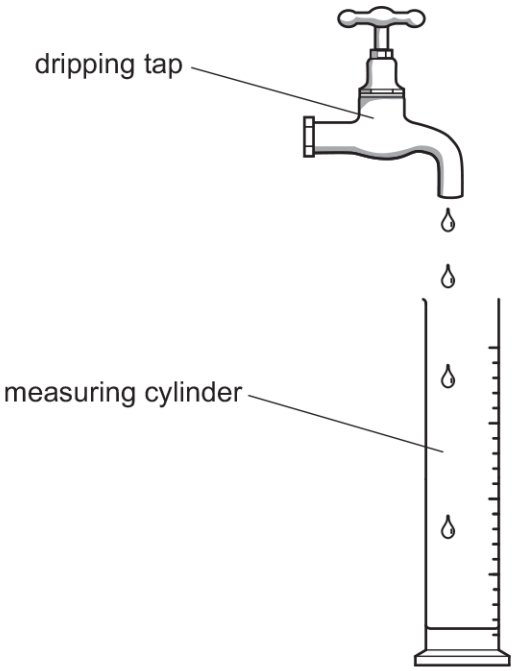

Fig. 1.1 (not to scale)

(a) (i) The student collects 200 of the drops in a measuring cylinder. The total volume collected is 60 cm^3.

Calculate the average volume of **one** drop of water.

volume = ... cm^3 [3]

(ii) Another student uses a stop-watch to measure the time taken for the tap to produce 200 drops. Fig. 1.2 shows the time reading on the stop-watch.

Fig. 1.2

Determine the time, in seconds, for the tap to produce 200 drops.

time = ... s [2]

(iii) Determine the average time interval between one drop starting to fall and the next drop starting to fall.

time interval = ... s [2]

(b) Fig. 1.3 shows the volume of water collected in the measuring cylinder by another student.

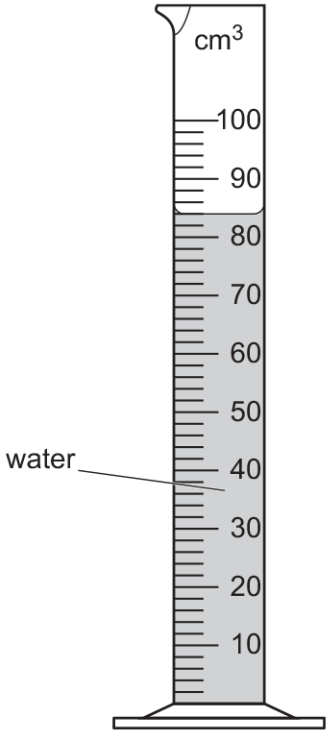

Fig. 1.3

Determine the volume of water in the measuring cylinder in Fig. 1.3.

volume = ... cm^3 [1]

[Total: 8]

2. 0625_w22_qp_31 Q: 1

Fig. 1.1 shows a measuring cylinder containing some water.

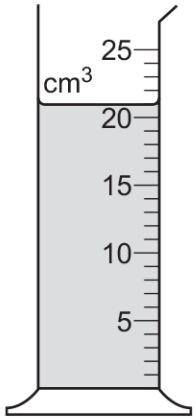

Fig. 1.1

(a) State the volume of the water in the measuring cylinder.

volume = ... cm^3 [1]

(b) A student adds 20 drops of water to the water that is in the measuring cylinder in Fig. 1.1. The new volume of water in the measuring cylinder is 25 cm^3.

Calculate the average volume of one drop of water.

average volume of one drop = ... cm^3 [4]

(c) A student has a measuring cylinder and a small, irregularly shaped piece of metal. The piece of metal can easily fit into the measuring cylinder.

Describe how the student can use the measuring cylinder and some water to find the volume of the metal.

.....

.....

.....

.....

..... [4]

[Total: 9]

3. 0625_m20_qp_32 Q: 1

(a) A student places 8 similar coins in a pile, as shown in Fig. 1.1.

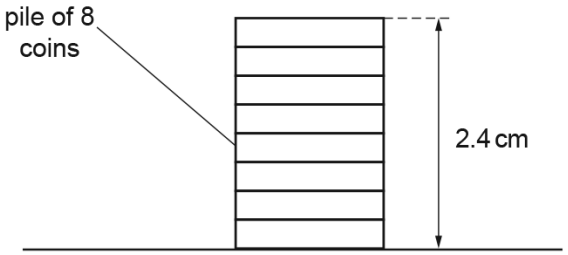

Fig. 1.1 (not to scale)

The height of the pile of coins is 2.4 cm.

Calculate the average thickness of one coin.

average thickness = ... cm [2]

(b) Fig. 1.2 shows the pile of coins, a measuring cylinder and a beaker containing some water.

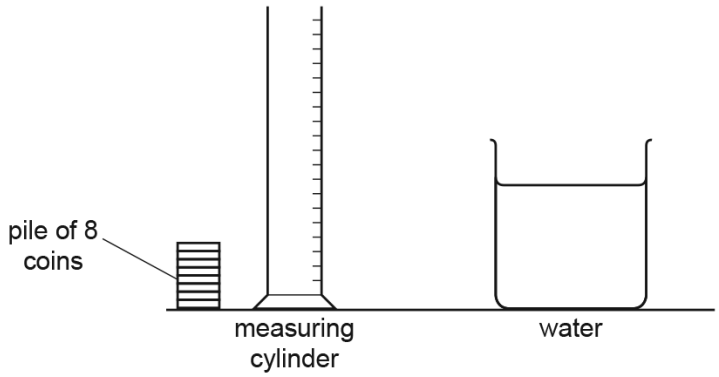

Fig. 1.2 (not to scale)

Describe how the student can measure the volume of **one** of the coins using the set-up shown in Fig. 1.2.

.....

.....

.....

..... [4]

[Total: 6]

4. 0625_m19_qp_32 Q: 1

Fig. 1.1 shows a set of masses made from the same material.

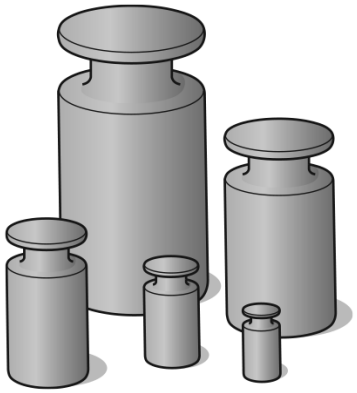

Fig. 1.1

(a) Identify the quantity that is the same for all the masses.

Tick **one** box.

- ☐ density
- ☐ volume
- ☐ weight [1]

(b) The largest mass is 2.5 kg.

State the number of grams in 2.5 kg.

2.5 kg = ... g [1]

(c) The three largest masses are 2.5 kg, 1.0 kg and 0.5 kg.

Calculate the combined **weight** of these three masses. Include the unit.

weight = ... [4]

[Total: 6]

5. 0625_w19_qp_31 Q: 2

Four students P, Q, R and S each attempt to measure the time period (the time for one complete oscillation) of a pendulum. The arrows in Fig. 2.1 show the movements of the pendulum that each student times.

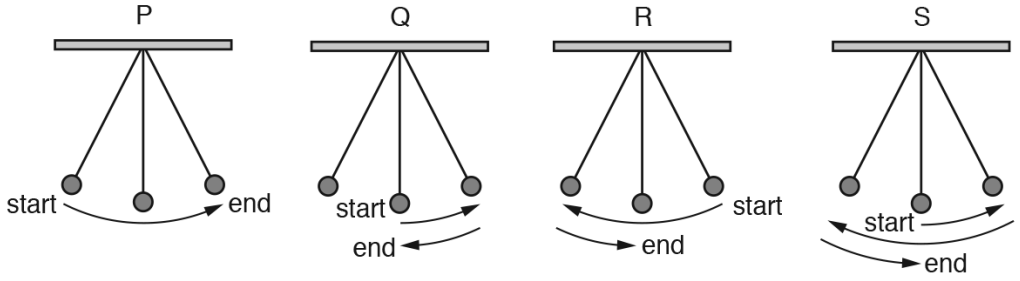

Fig. 2.1

(a) State the student who has chosen the correct movement for one period of a pendulum.

student ..... [1]

(b) Another student uses a stopwatch to measure the time taken for 50 periods of a pendulum. Fig. 2.2 shows the time taken on the stopwatch.

Fig. 2.2

Calculate the time for one period of the pendulum. Give your answer to 3 significant figures.

time for one period = ... s [3]

(c) The student measures the displacement of the pendulum bob from its rest position. The displacement is 16.5 cm, as shown in Fig. 2.3.

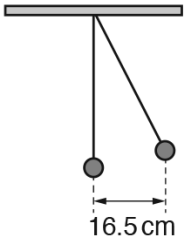

Fig. 2.3

State the displacement in millimetres.

displacement = ... mm [1]

[Total: 5]

6. 0625_w19_qp_33 Q: 1

(a) A student uses a stopwatch in a timing experiment.

Fig. 1.1 shows the stopwatch readings.

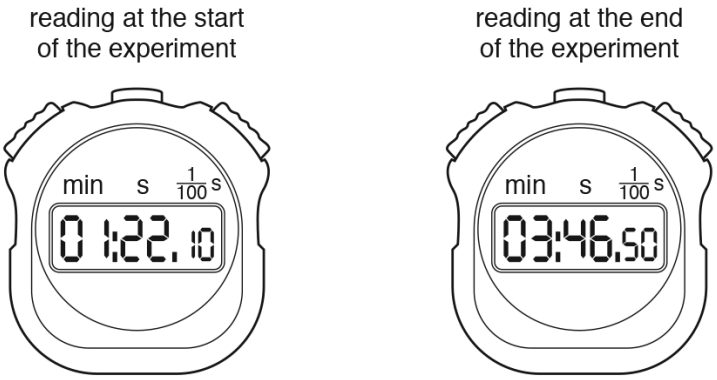

Fig. 1.1

Calculate the time interval between the two readings.

time interval = ... s [2]

(b) A device has a light-emitting diode (LED) that flashes briefly at regular intervals.

Describe how to determine accurately the average time for each interval, using a stopwatch.

.....

.....

.....

.....

.....

..... [4]

[Total: 6]

7. 0625_s17_qp_31 Q: 1

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.

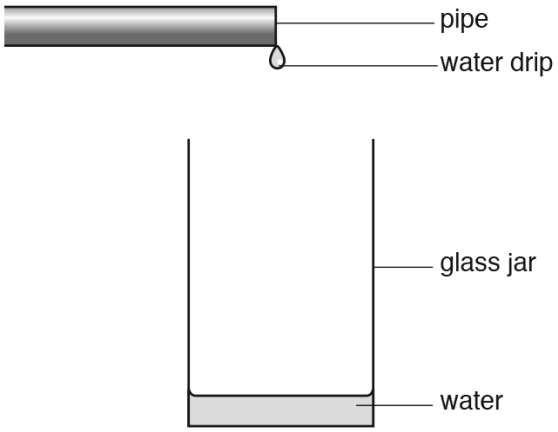

Fig. 1.1

(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.

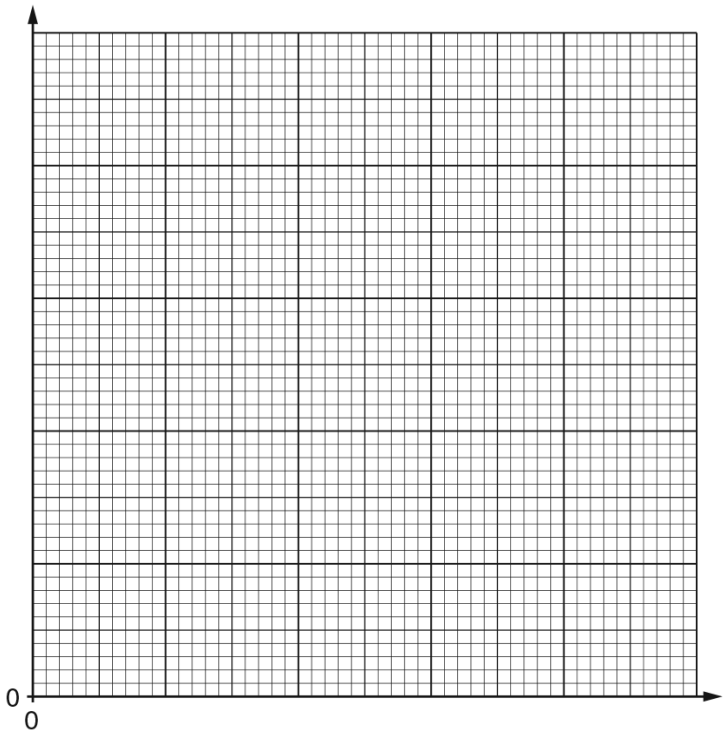

Fig. 1.2

(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]

8. 0625_w17_qp_31 Q: 1

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.

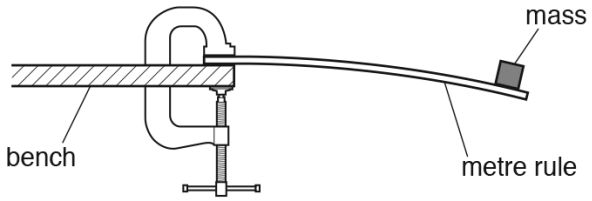

Fig. 1.1

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]

1.2 Motion

9. 0625_s23_qp_31 Q: 1

A cyclist is travelling along a straight road. Fig. 1.1 shows the speed–time graph for the cyclist. The graph is divided into four sections labelled P, Q, R and S.

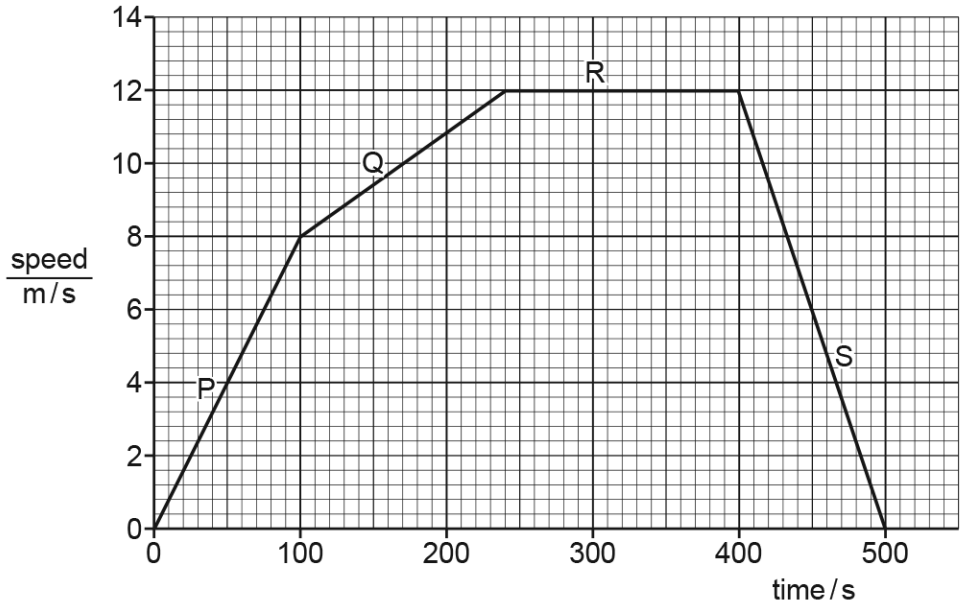

Fig. 1.1

(a) Calculate the distance travelled by the cyclist in section P from time = 0 to time = 100 s.

distance travelled = ... m [3]

(b) Describe the motion of the cyclist in each of sections Q, R and S shown in Fig. 1.1.

Q .....

R .....

S .....

[3]

(c) The cyclist is moving north along the road.

Determine the velocity of the cyclist at time = 300 s. Include the unit.

velocity of cyclist = ... [2]

[Total: 8]

10. 0625_s23_qp_33 Q: 1

Fig. 1.1 shows the distance–time graph for an engineer's journey.
She drives from her home directly to her office and parks the car.
She then drives from her office to her friend's house and parks the car.

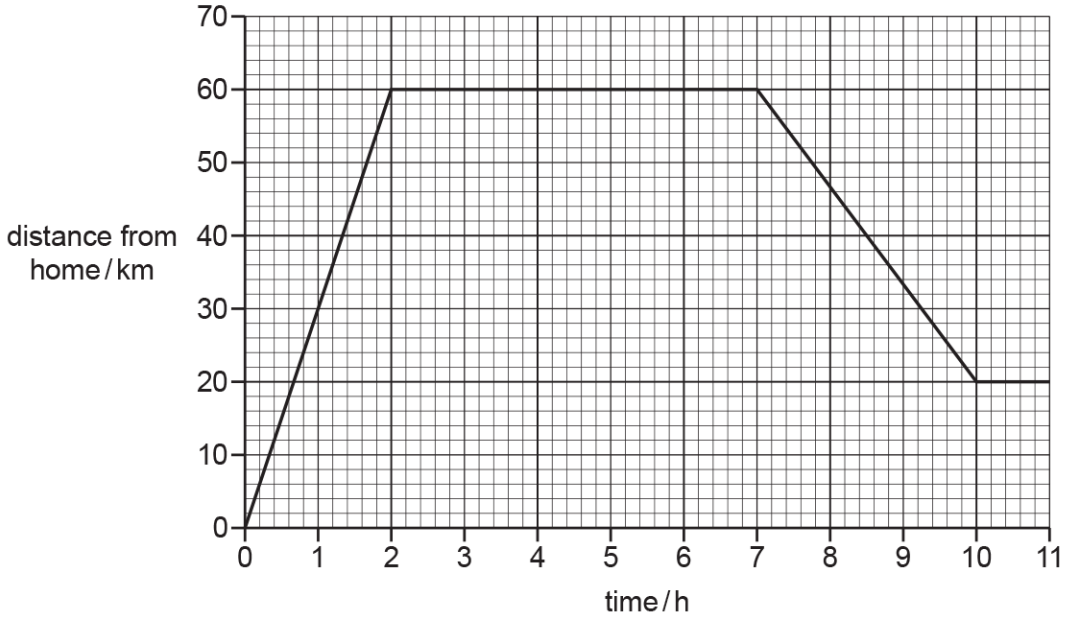

Fig. 1.1

(a) Determine the distance between:

(i) the engineer's home and her office ..... km [1]

(ii) the engineer's office and her friend's house. ..... km [1]

(b) Determine the time taken to travel between:

(i) the engineer's home and her office ..... h [1]

(ii) the engineer's office and her friend's house. ..... h [1]

(c) Calculate the speed of the car between time = 7 h and time = 10 h.

speed = ... km / h [3]

[Total: 7]

11. 0625_s22_qp_31 Q: 2

Fig. 2.1 shows the speed–time graphs for two cars, A and B.

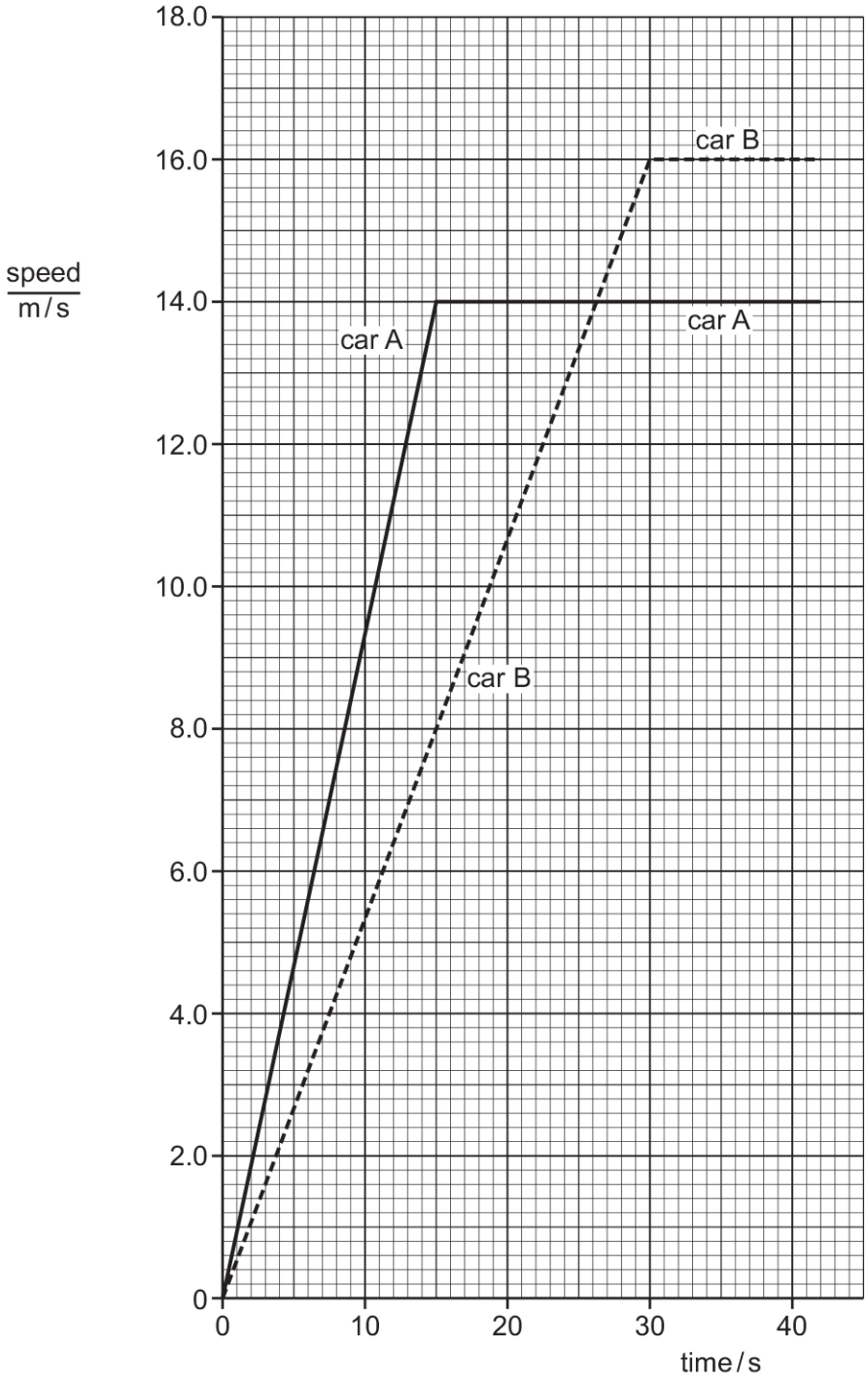

Fig. 2.1

(a) (i) Determine the speed of car A at time = 10 s.

speed = ... m/s [2]

(ii) State and explain which car, A or B, has the greater acceleration during the first 10 seconds. Use information from the graph in Fig. 2.1 in your explanation.

.....

..... [2]

(b) (i) Describe the motion of car B after 30 s.

.....

..... [2]

(ii) Calculate the distance moved by car B from time = 0 to time = 30.0 s.

distance = ... m [3]

[Total: 9]

12. 0625_s22_qp_32 Q: 1

A student investigates the motion of a trolley as it travels down a slope.

(a) The student makes **two** measurements to determine the average speed of the trolley as it travels down the slope.

State the **two** measurements.
For each measurement, suggest the instrument used for making the measurement.

1. measurement ..... instrument used .....

2. measurement ..... instrument used .....

[2]

(b) Fig. 1.1 shows the speed–time graph for a different trolley as it travels down a slope.

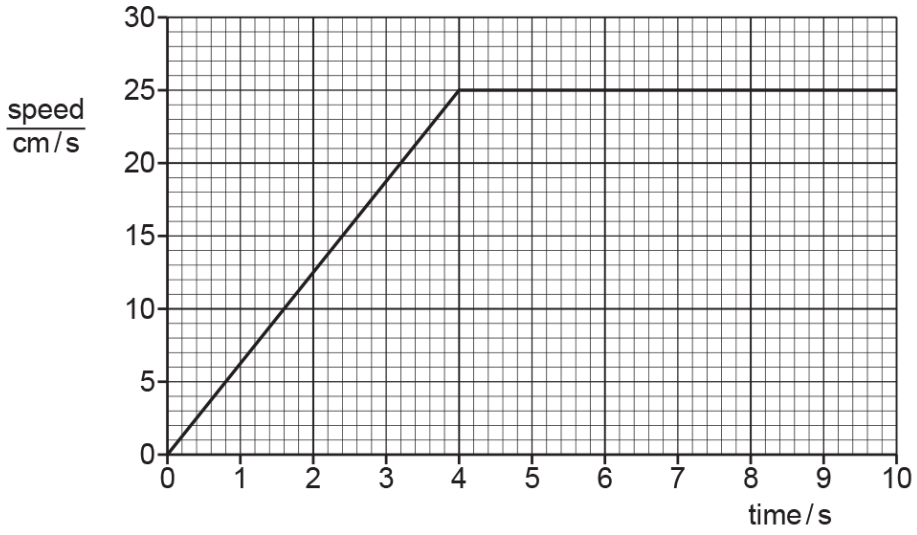

Fig. 1.1

(i) Determine the speed of the trolley at time = 2.0 s.

speed = ... cm/s [2]

(ii) Determine the distance moved by the trolley from time = 0 to time = 4.0 s.

distance = ... cm [3]

(iii) Using the information in Fig. 1.1, describe the motion of the trolley from time = 0 to time = 10 s.

.....

..... [2]

[Total: 9]

13. 0625_s22_qp_33 Q: 1

Fig. 1.1 shows children about to run a race. They have to run 25 m, pick up a small plastic ring and run back to the base line. Each child finishes when they cross the base line holding the plastic ring.

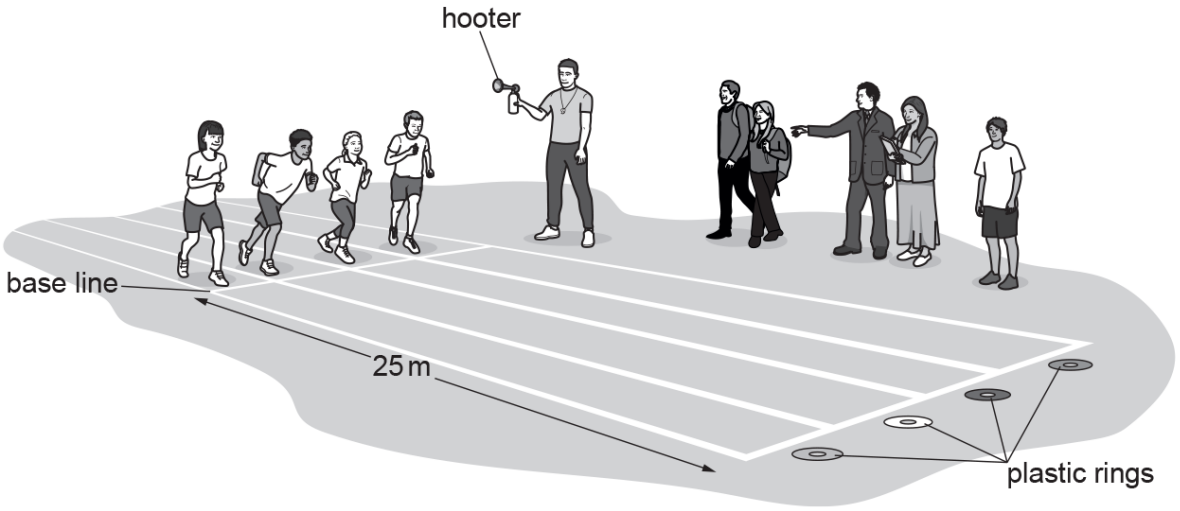

Fig. 1.1

(a) (i) Suggest what equipment the teacher uses to measure the length of 25 m.

..... [1]

(ii) Determine the total distance for the race.

distance = ... m [1]

(b) The teacher records the following information for **one** of the children.

The child starts to run at time = 0.
The child picks up the ring at time = 9.0 s.
The child finishes the race at time = 17.0 s.
The highest speed occurs as the child finishes the race.

Using this information, sketch a speed–time graph on Fig. 1.2, suggesting how the speed of this child varies during the race.

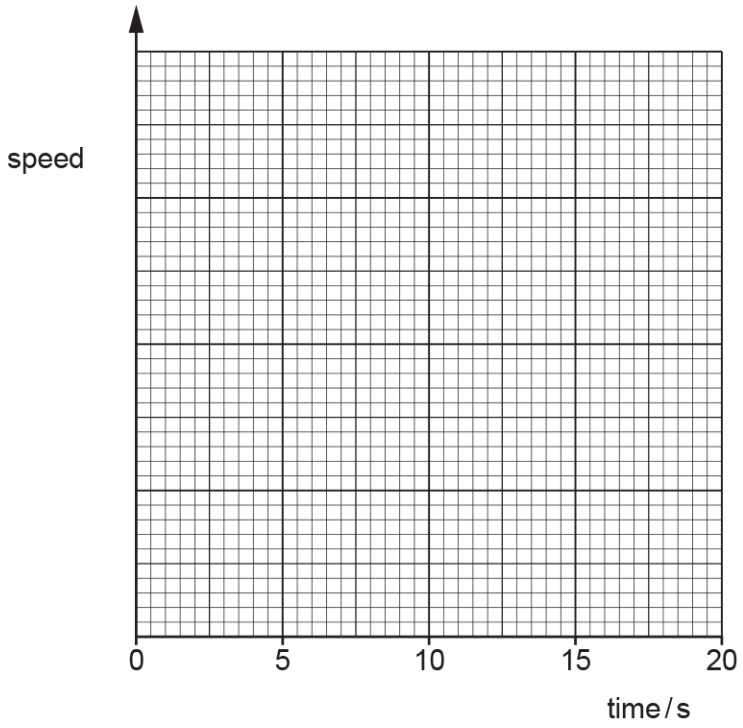

Fig. 1.2

[3]

(c) In a different race, a child runs 500 m in 4 minutes and 20 seconds.

(i) Determine how many seconds there are in 4 minutes and 20 seconds.

time = ... s [1]

(ii) Calculate the average speed of the child.

average speed = ... m / s [3]

[Total: 9]

14. 0625_w22_qp_33 Q: 1

Fig. 1.1 shows a tram. Trams carry passengers from one place to another.

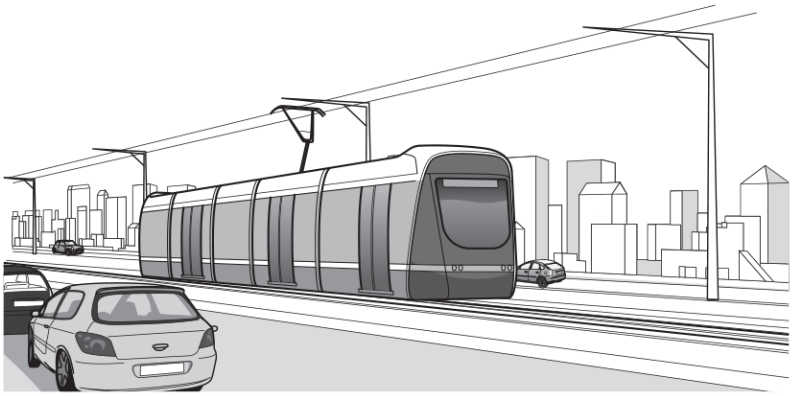

Fig. 1.1

A tram travels from A to E, stopping at B, C and D on the way.
Fig. 1.2 shows the speed–time graph for this tram journey.

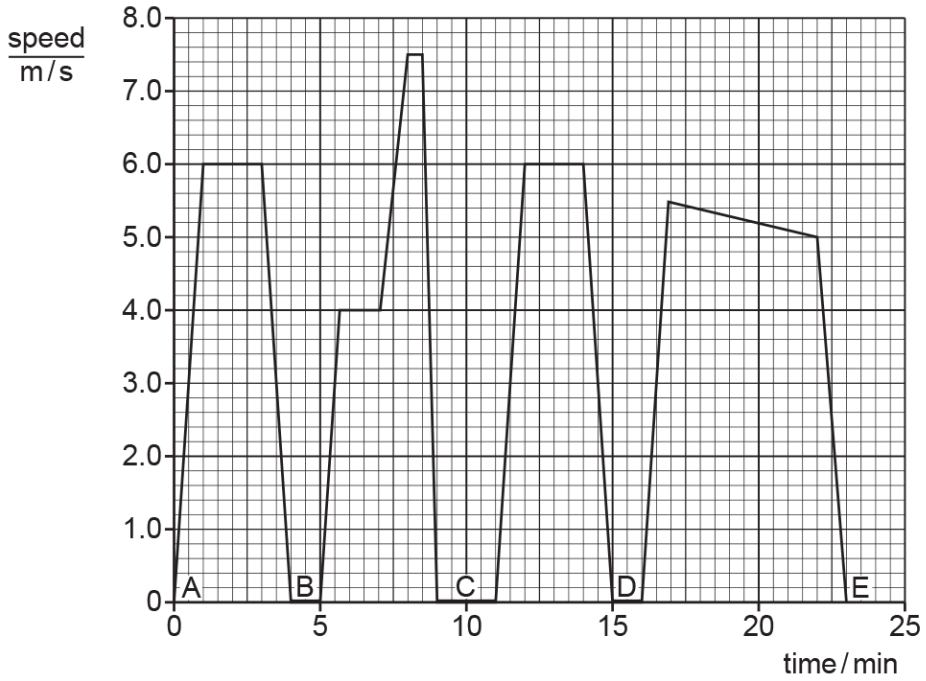

Fig. 1.2

(a) (i) Determine the time between the tram leaving A and arriving at C.

time = ... min [1]

(ii) Determine the maximum speed of the tram during the journey from A to E.

maximum speed = ... m/s [1]

(iii) The tram decelerates as it approaches each stop. Use information from Fig. 1.2 to identify the greatest deceleration. Give a reason for your answer.

Complete the sentence.

The greatest deceleration occurs as the tram approaches ..... .

reason .....

.....

[2]

(b) The total distance between A and E is 5200 m.
The tram takes 1380 s to travel from A to E.

Calculate the average speed of the tram between A and E.

average speed = ... m/s [3]

[Total: 7]

15. 0625_s21_qp_31 Q: 1

Fig. 1.1 shows a speed–time graph for a car.

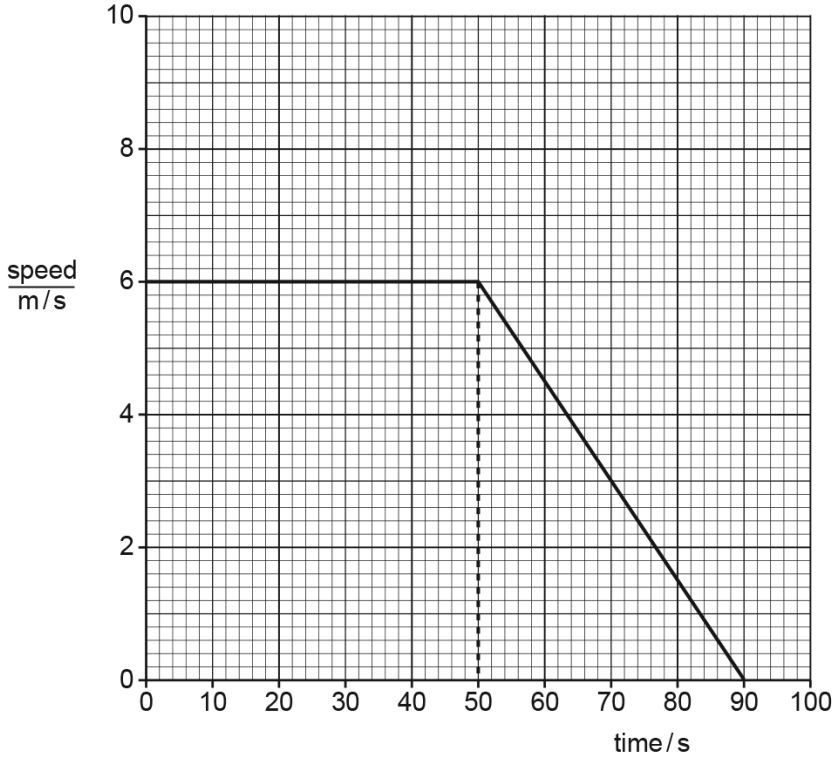

Fig. 1.1

(a) (i) Describe the motion of the car from 0 to 50 s, as shown in Fig. 1.1.

..... [1]

(ii) Describe the motion of the car from 50 s to 90 s, as shown in Fig. 1.1.

.....

..... [1]

(iii) Calculate the distance travelled by the car between 50 s and 90 s.

distance travelled = ... m [3]

(b) A motorcycle travels at a constant speed.

(i) The motorcycle travels 710 m in 87 s.

Calculate the speed of the motorcycle and show that it is close to 8 m / s.

[3]

(ii) The motorcycle in part **(b)(i)** travels at a constant speed for 87 s.

On Fig. 1.1, draw the speed–time graph for the motorcycle. [2]

[Total: 10]

16. 0625_s21_qp_32 Q: 2

Fig. 2.1 shows how the speed of a car varies between 0 and 60.0 s.

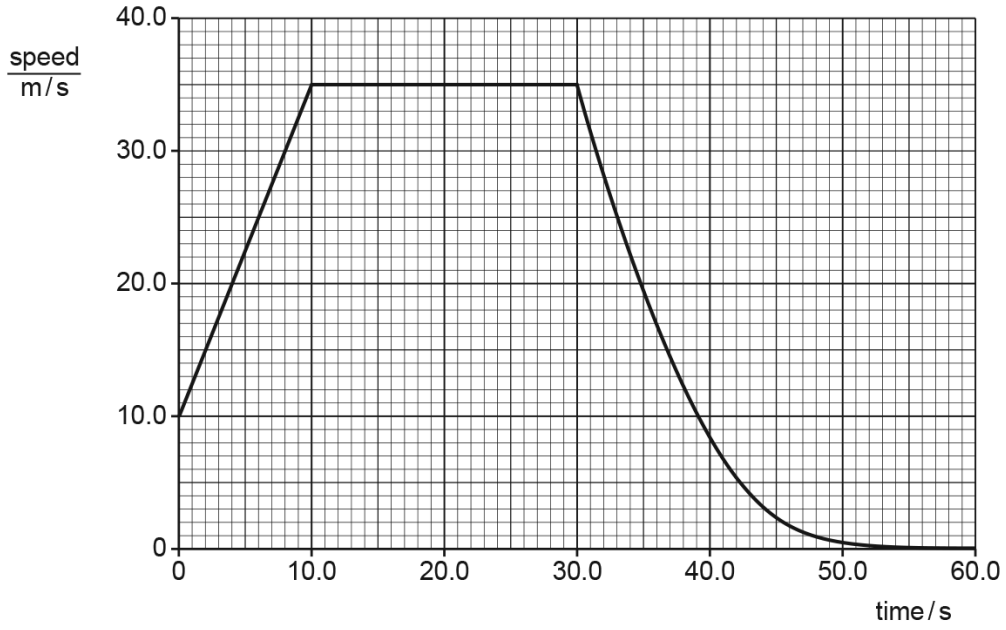

Fig. 2.1

(a) Determine the speed of the car using information from Fig. 2.1:

(i) when the time is 5.0 s

speed = ... m/s [2]

(ii) when the car is moving with a constant speed.

speed = ... m/s [1]

(b) Describe how the speed of the car changes between 30.0 s and 60.0 s.

..... [2]

(c) Determine the distance travelled by the car between 10.0 s and 30.0 s.

distance travelled = ... m [3]

(d) The total distance travelled by the car in the last 30.0 s is 226 m.

Calculate the average speed of the car in the last 30.0 s.

average speed = ... m/s [3]

[Total: 11]

17. 0625_s21_qp_33 Q: 1

Fig. 1.1 shows the speed–time graph for a car travelling along a road.

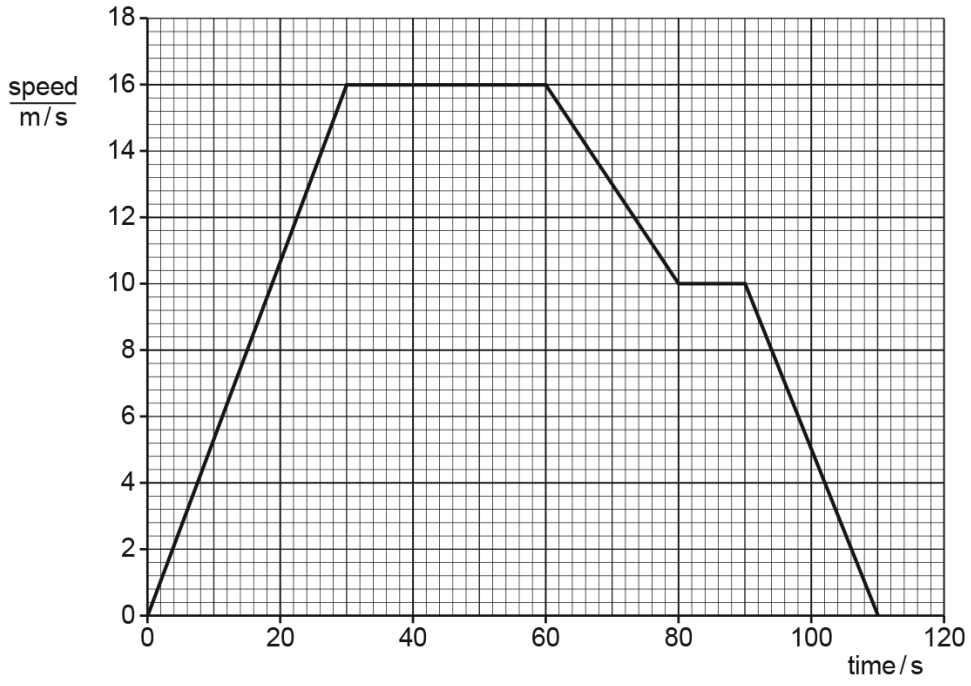

Fig. 1.1

(a) Determine the distance travelled by the car between 30 s and 60 s.

distance travelled = ... m [3]

(b) The distance travelled by the car between 60 s and 110 s is 460 m.

Calculate the average speed of the car between 60 s and 110 s.

average speed = ... m/s [4]

(c) Describe the motion of the car between 30 s and 60 s.

..... [1]

(d) Describe the motion of the car between 60 s and 80 s.

..... [1]

[Total: 9]

18. 0625_w21_qp_31 Q: 2

A slope is made by resting one end of a plank of wood on a block, as shown in Fig. 2.1.

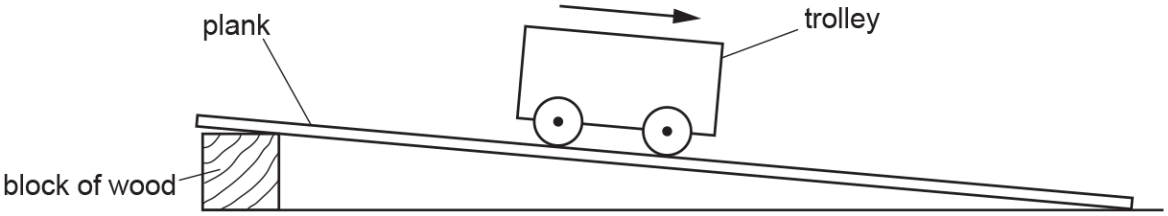

Fig. 2.1

Two students each use a digital stop-watch to measure the time for a small trolley to roll down the full length of the slope.

Fig. 2.2 shows the times on the stop-watches.

student 1

time = ... s

student 2

time = ... s

Fig. 2.2

(a) (i) On the line next to each stop-watch, write the time it shows. [1]

(ii) Calculate the average time for the trolley to roll down the slope.

average time = ... s [2]

(iii) The students want the same trolley to take more time to roll down the plank.

Suggest how the students alter the arrangement in Fig. 2.1.

..... [1]

(b) A different trolley travels 1.2 m down the slope in a time of 7.8 s.

Calculate the average speed of the trolley.

average speed = ... m/s [3]

(c) The trolley travels down a different slope. Fig. 2.3 shows the speed–time graph.

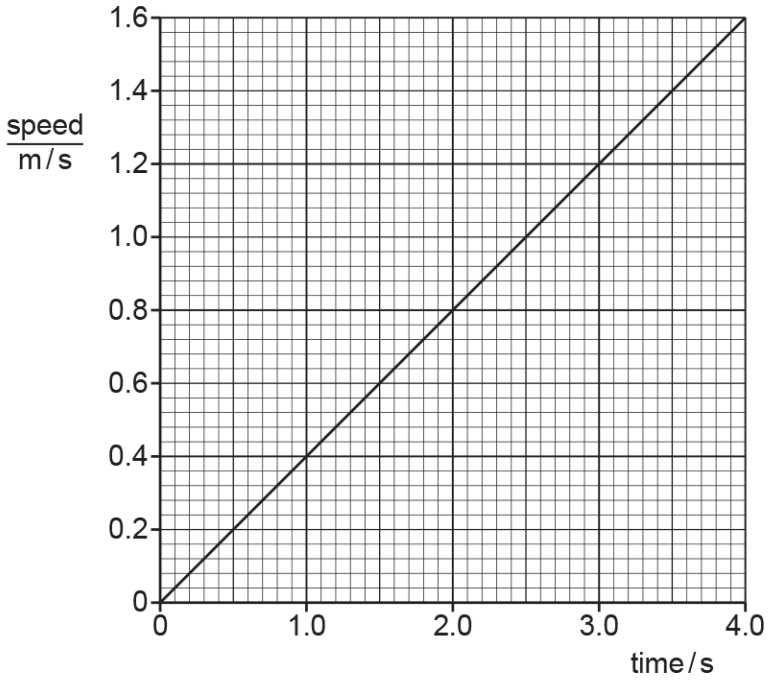

Fig. 2.3

Calculate the distance travelled by the trolley between time = 0 and time = 4.0 s.

distance travelled = ... m [3]

[Total: 10]

19. 0625_w21_qp_32 Q: 1

A cyclist travels to a friend's house.

Fig. 1.1 shows the distance–time graph of the journey.

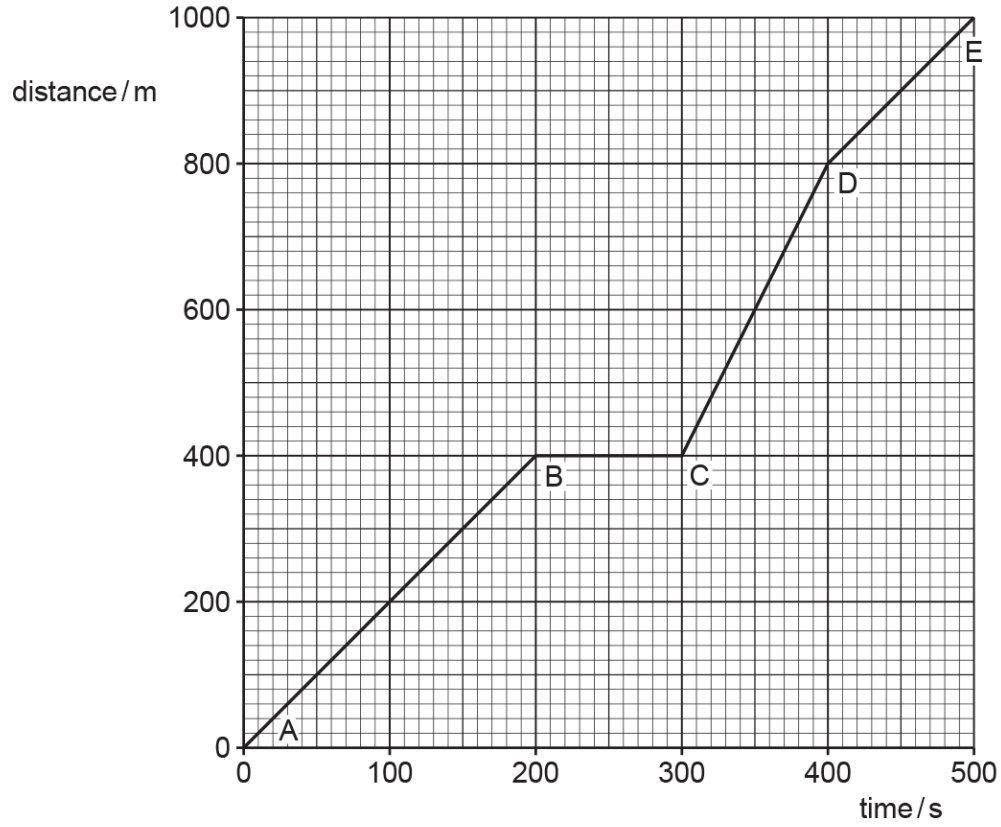

Fig. 1.1

(a) Determine the distance travelled by the cyclist between points C and E.

distance travelled = ... m [2]

(b) Describe the motion, if any, of the cyclist between points B and C. ..... [1]

(c) State the section, AB, BC, CD or DE, of the graph in which the speed of the cyclist is the fastest. Give a reason for your answer.

section of graph .....

reason ..... [2]

(d) Calculate the average speed of the cyclist between points A and E. Include the unit in your answer.

average speed = ... unit ..... [4]

[Total: 9]

20. 0625_w21_qp_33 Q: 1

Fig. 1.1 shows a plant pot falling from an upstairs balcony. The plant pot has a constant acceleration as it falls.

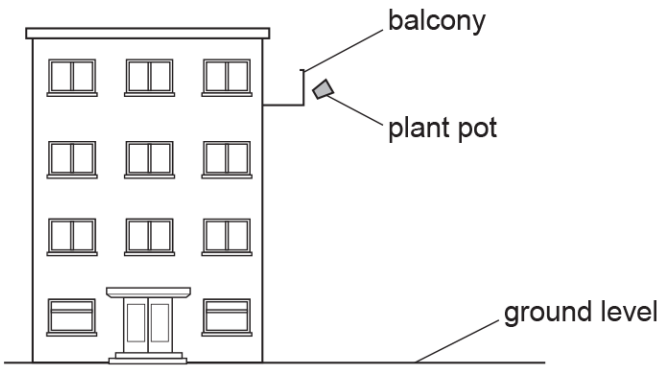

Fig. 1.1

(a) State the cause of the acceleration.

..... [1]

(b) Fig. 1.2 shows the speed–time graph for the falling plant pot. The plant pot hits the ground at time = 1.8 s.

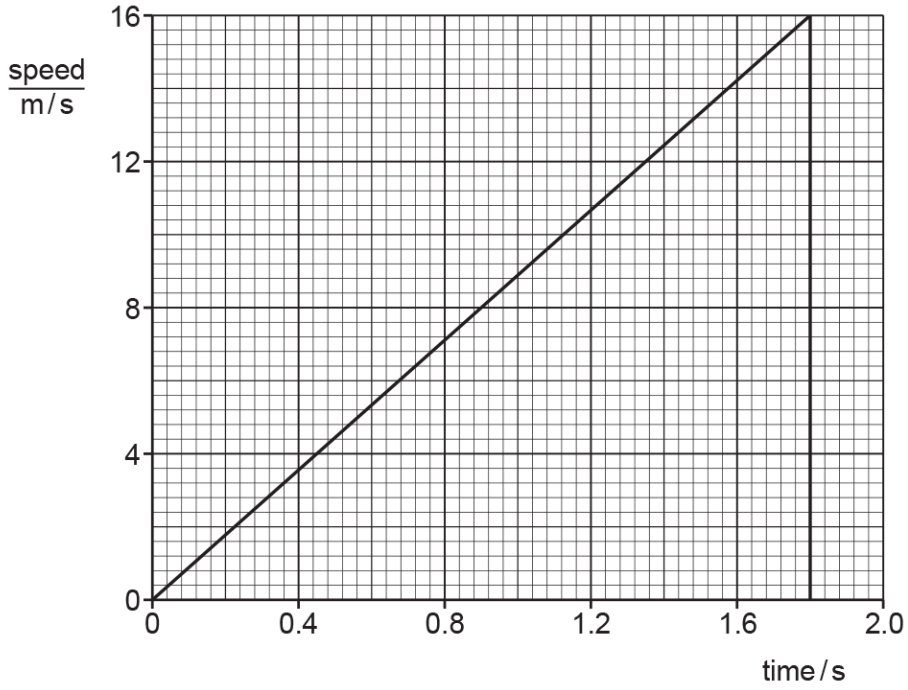

Fig. 1.2

Determine the height of the balcony above the ground using the information shown in Fig. 1.2.

height = ... m [3]

[Total: 4]

21. 0625_w21_qp_33 Q: 7

A group of students are taking measurements so they can calculate the speed of sound.

The students and their teacher are outside.

The teacher holds two blocks of wood and the students have stop-watches.

The teacher stands a long distance from the students, as shown in Fig. 7.1.

All the students can see the teacher clearly.

Fig. 7.1 (not to scale)

The teacher claps the two blocks of wood together to produce a loud sound. The students measure the time interval between seeing the teacher clap and hearing the sound.

(a) Fig. 7.2 shows three of the stop-watches. The stop-watches show three of the values recorded for the time interval.

Fig. 7.2

Calculate the average value for the time intervals shown on the stop-watches in Fig. 7.2.

average time interval = ... s [3]

(b) (i) State the name of the instrument needed to measure the distance between the teacher and the students.

..... [1]

(ii) The distance between the teacher and the students is 415 m.

The average time for the sound to travel between the teacher and the students is 1.29 s.

Calculate the speed of sound.

speed of sound = ... m/s [3]

[Total: 7]

Appendix A

Answers

1. 0625_s22_ms_31 Q: 1

Question	Answer	Marks
(a)(i)	0.3(0) (cm^3)	**A3**
	(average volume of one drop) = 60 ÷ 200	**(C2)**
	total volume = number of drops × (average) volume of one drop	**(C1)**
(a)(ii)	226.5 (s)	**A2**
	180 (+ 46.5 =)	**(C1)**
(a)(iii)	1.1 (s)	**A2**
	time for one drop = total time ÷ no of intervals	**(C1)**
(b)	84 (cm^3)	**B1**

2. 0625_w22_ms_31 Q: 1

Question	Answer	Marks
(a)	21 (cm^3)	**B1**
(b)	0.2(0) (cm^3)	**A4**
	(average volume of one drop) = 4(.0) / 20	C3
	(volume = 25 – 21 =) 4(.0) (cm^3)	C1
	total volume = number of drops × (average) volume of one drop	C1
(c)	any **four** from: • measure volume of water (in a measuring cylinder) • add metal to water in the measuring cylinder • so that metal is completely submerged • measure (new) volume of water in a measuring cylinder (with metal) • find the difference between the two volumes.	**B4**

3. 0625_m20_ms_32 Q: 1

(a)	(average thickness =) 2.4 ÷ 8	**C1**
	(average thickness =) 0.3 (cm)	**A1**
(b)	any **four** from: measuring cylinder partially filled with water / displacement can filled with water volume of water recorded / empty measuring cylinder under spout coin(s) in water OR water covers all coin(s) new volume noted / displaced water collected in measuring cylinder (average) volume of a coin = increase in volume OR increase in volume ÷ number of coins	**B4**

4. 0625_m19_ms_32 Q: 1

(a)	top box ticked: density	**B1**
(b)	2500 (g)	**B1**
(c)	W = mg in any form	**C1**
	(2.5 + 1.0 + 0.5) = 4	**C1**
	40	**A1**
	N or newtons	**B1**

5. 0625_w19_ms_31 Q: 2

(a)	(student) S	**B1**
(b)	83.37 (s) seen	**C1**
	83.37 ÷ 50	**C1**
	1.67 (s) cao	**A1**
(c)	165 (mm)	**B1**

6. 0625_w19_ms_33 Q: 1

(a)	226.50 – 82.10 **OR** 3:46.5(0) – 1:22.1(0) **OR** 2 min 24.4 (s) 144.4(0) (s)	**C1** **A1**
(b)	start stopwatch as LED lights owtte count large number of flashes i.e. > = 10 stop stopwatch on nth lighting of LED AND n > = 1 divide time on stopwatch by n	**B4**

7. 0625_s17_ms_31 Q: 1

(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 ÷ 1000	**C1**
	0.0025 (m) **OR** 2.5×10^{-3}	**A1**
	Total:	**8**

8. 0625_w17_ms_31 Q: 1

(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 ÷ 3 =) 4.0 (s)	**A1**
(c)(iii)	0.40 (s) OR **(c)(ii)** ÷ 10	**B1**

9. 0625_s23_ms_31 Q: 1

Question	Answer	Marks
(a)	(distance travelled =) 400 (m)	**A3**
	(distance travelled =) ½ × 8 × 100	(C2)
	(distance travelled =) area under graph **OR** ½ × *b* × *h*	(C1)
(b)	(section Q) accelerating	**B1**
	(section R) constant speed **OR** steady speed	**B1**
	(section S) decelerating	**B1**
(c)	(velocity =) 12 m / s	**B1**
	north	**B1**

10. 0625_s23_ms_33 Q: 1

Question	Answer	Marks
(a)(i)	60 (km)	**B1**
(a)(ii)	40 (km)	**B1**
(b)(i)	2 (h)	**B1**
(b)(ii)	3 (h)	**B1**
(c)	(speed =) distance / time in any form **OR** gradient of line	**C1**
	40 / 3	**C1**
	13 (km / h)	**A1**

11. 0625_s22_ms_31 Q: 2

Question	Answer	Marks
(a)(i)	9.3 (m/s)	**A2**
	any indication on graph or in working of vertical line from 10.0 s	**(C1)**
(a)(ii)	(car) A (has greater acceleration)	**M1**
	(speed-time graph/line) has greater gradient OR is steeper	**A1**
(b)(i)	speed (of car) is steady OR speed is constant	**B1**
	(at) 16 m/s	**B1**
(b)(ii)	240 (m)	**A3**
	(distance =) ½ × 16 × 30	**(C2)**
	distance travelled = area under graph OR (d =)speed × time OR ½ × b × h	**(C1)**

12. 0625_s22_ms_32 Q: 1

Question	Answer	Marks
(a)	(measurement) time (instrument used) stopwatch	B1
	(measurement) distance (instrument used) metre rule(r)	B1
(b)(i)	12.5 (cm/s)	A2
	any indication on graph or in working of vertical line from 2.0 s	(C1)
(b)(ii)	50 (cm)	A3
	½ × 4 × 25	(C2)
	(distance =) area under graph OR (distance =) speed × time	(C1)
(b)(iii)	accelerating (for 4 seconds)	B1
	(then) constant / steady speed (for 6 seconds)	B1

13. 0625_s22_ms_33 Q: 1

Question	Answer	Marks
(a)(i)	metre rule	B1
(a)(ii)	50 (m)	B1
(b)	graph starts at origin	B1
	speed = 0 at 9.0 s	B1
	highest speed at 17 s	B1
(c)(i)	260 (s)	B1
(c)(ii)	1.9 (m/s)	A3
	500 ÷ 260 OR 500 ÷ **(c)(i)**	(C2)
	(speed =) distance ÷ time in any form	(C1)

14. 0625_w22_ms_33 Q: 1

Question	Answer	Marks
(a)(i)	9 (min)	B1
(a)(ii)	7.5 (m / s)	B1
(a)(iii)	C	M1
	greatest slope / greater change of speed in same time interval owtte	A1
(b)	3.8 (m / s)	A3
	5200 ÷ 1380	(C2)
	(average speed =) (total) distance ÷ (total) time in any form	(C1)

15. 0625_s21_ms_31 Q: 1

	Answer	Mark
(a)(i)	constant speed/velocity OR (moving at) 6 m / s	B1
(a)(ii)	(constant) deceleration/decelerating OR (then) slows OR decreasing speed	B1
(a)(iii)	(distance =) area under graph OR ½ × b × h	C1
	40 × 6 × 0.5	C1
	120 (m)	A1
(b)(i)	(speed =) distance ÷ time	C1
	710 ÷ 87	C1
	8.2 (m / s)	A1
(b)(ii)	horizontal line on Fig. 1.1	M1
	horizontal line only at 8.2 m / s OR 8.0 m / s (by eye) to at least 80 s	A1

16. 0625_s21_ms_32 Q: 2

	Answer	Marks
(a)(i)	any indication on graph or in working of vertical line from 5.0 s	C1
	22.5 (m / s)	A1
(a)(ii)	35 (m / s)	B1
(b)	(speed of car) decreasing OR slows (down)	B1
	(until speed of car) is zero OR stops (moving)	B1
(c)	(distance =) area under graph OR (distance =) speed × time	C1
	20 × 35	C1
	700 (m)	A1

	Answer	Marks
(d)	(average speed =) (total) distance ÷ (total) time	C1
	226 ÷ 30(.0)	C1
	7.53 (m / s)	A1

17. 0625_s21_ms_33 Q: 1

	Answer	Mark
(a)	(distance =) area under graph	C1
	16 × 30	C1
	480 (m)	A1
(b)	(110 – 60 =) 50	B1
	(speed =) distance ÷ time in any form	C1
	460 / 50	C1
	9.2 (m / s)	A1
(c)	constant speed OR 16 m / s	B1
(d)	decelerating OR negative acceleration OR slowing down / owtte	B1

18. 0625_w21_ms_31 Q: 2

Question	Answer	Marks
(a)(i)	6.14 (s) AND 6.28 (s)	B1
(a)(ii)	(6.14 + 6.28) ÷ 2 OR 12.42 ÷ 2	C1
	6.21 (s)	A1
(a)(iii)	idea of decreasing (angle of) slope OR less steep OR smaller gradient	B1
(b)	(average speed =)(total) distance ÷ (total) time in any form	C1
	1.2 ÷ 7.8	C1
	0.15 (m / s)	A1

Question	Answer	Marks
(c)	distance = area under graph OR ½ × base × height	C1
	4.0 × 1.6 × 0.5	C1
	3.2 (m)	A1

19. 0625_w21_ms_32 Q: 1

Question	Answer	Marks
(a)	1000 – 400	C1
	600 (m)	A1
(b)	stationary / not moving / zero speed / at rest, etc.	B1
(c)	CD	B1
	steep(est (gradient) OR larger distance in smaller time idea	B1
(d)	(average speed =)(total) distance ÷ (total) time in any form	C1
	1000 ÷ 500	C1
	2(.0)	A1
	m / s	B1

20. 0625_w21_ms_33 Q: 1

Question	Answer	Marks
(a)	weight / gravitational force / attraction (acting downwards)	B1
(b)	area under the graph / line	C1
	½ × 1.8 × 16	C1
	14 (m)	A1

21. 0625_w21_ms_33 Q: 7

Question	Answer	Marks
(a)	1.27 1.34 1.44	C1
	(1.27 + 1.34 + 1.44) ÷ 3 OR (4.05) ÷ 3	C1
	1.4 (s)	A1
(b)(i)	tape (measure)	B1
(b)(ii)	(speed =) d ÷ t in any form	C1
	415 ÷ 1.29	C1
	320 (m / s)	A1