

E2.9 Kinematics, Distance-Time & Speed-Time Graphs

Question Paper

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Level	Core
Topic	E2. Algebra and Graphs
Sub-Topic	E2.9 Kinematics, Distance-Time & Speed Time Graphs
Booklet	Question Paper

Time Allowed: 42 minutes

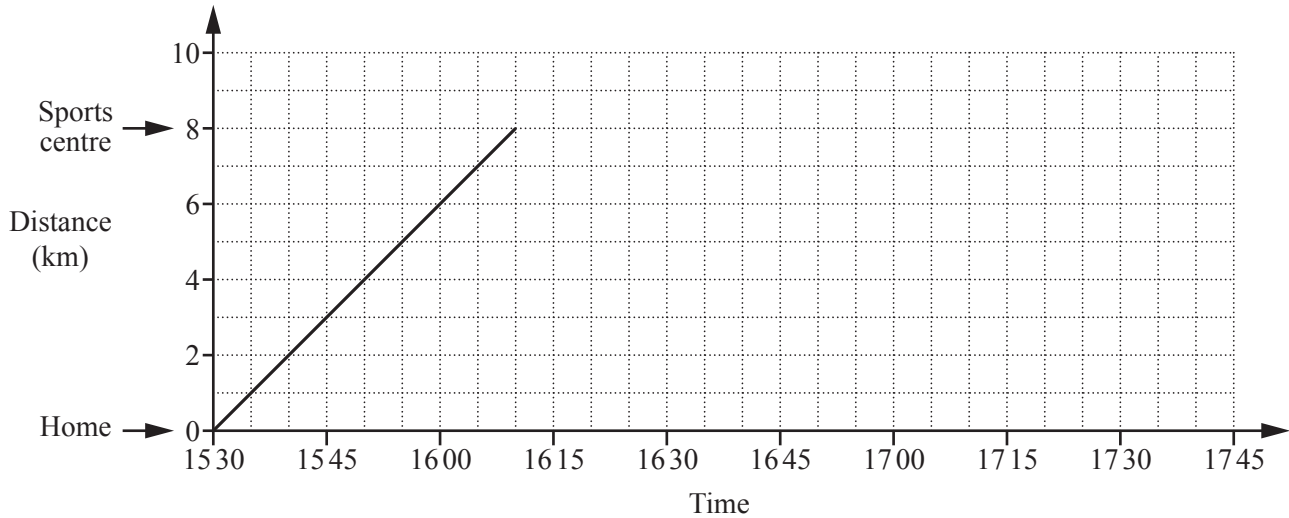
Score: /35

Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1



Sonali cycles from home to the sports centre.
The travel graph shows her journey.

(a) At what time does she arrive at the sports centre?

..... [1]

(b) Work out Sonali’s cycling speed in kilometres per hour.

..... km/h [2]

(c) Sonali stays at the sports centre for 45 minutes.
She then takes 30 minutes to cycle home.

Complete the travel graph.

[2]

Save My Exams! – The Home of Revision

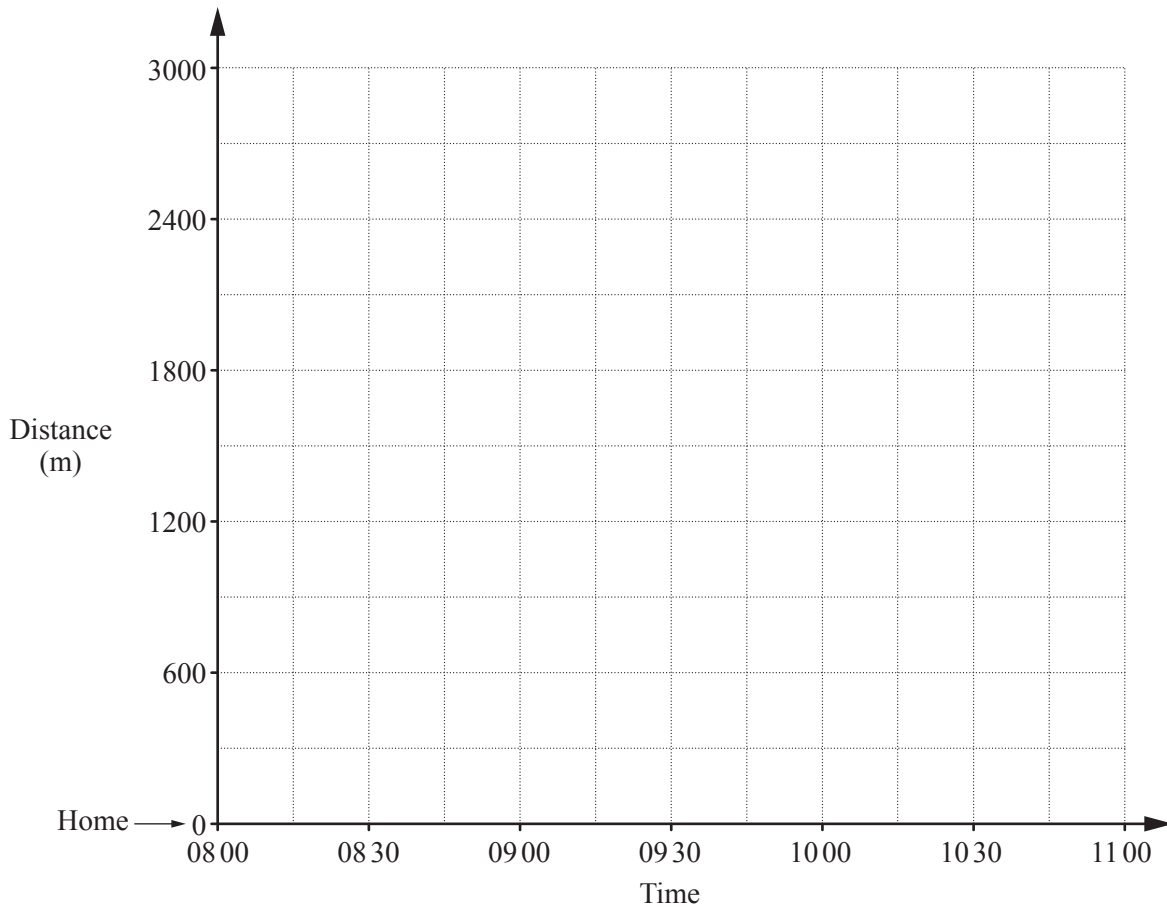
For more awesome GCSE and A level resources, visit us at www.savemyexams.co.uk

- 2 (a) Alice leaves home at 08 15 and walks at 80 metres per minute, arriving at her friend's house half an hour later.

(i) Work out the distance she walks, in metres, from her home to her friend's house.

..... m [1]

(ii) On the grid, show her journey from her home to her friend's house. [1]



(b)

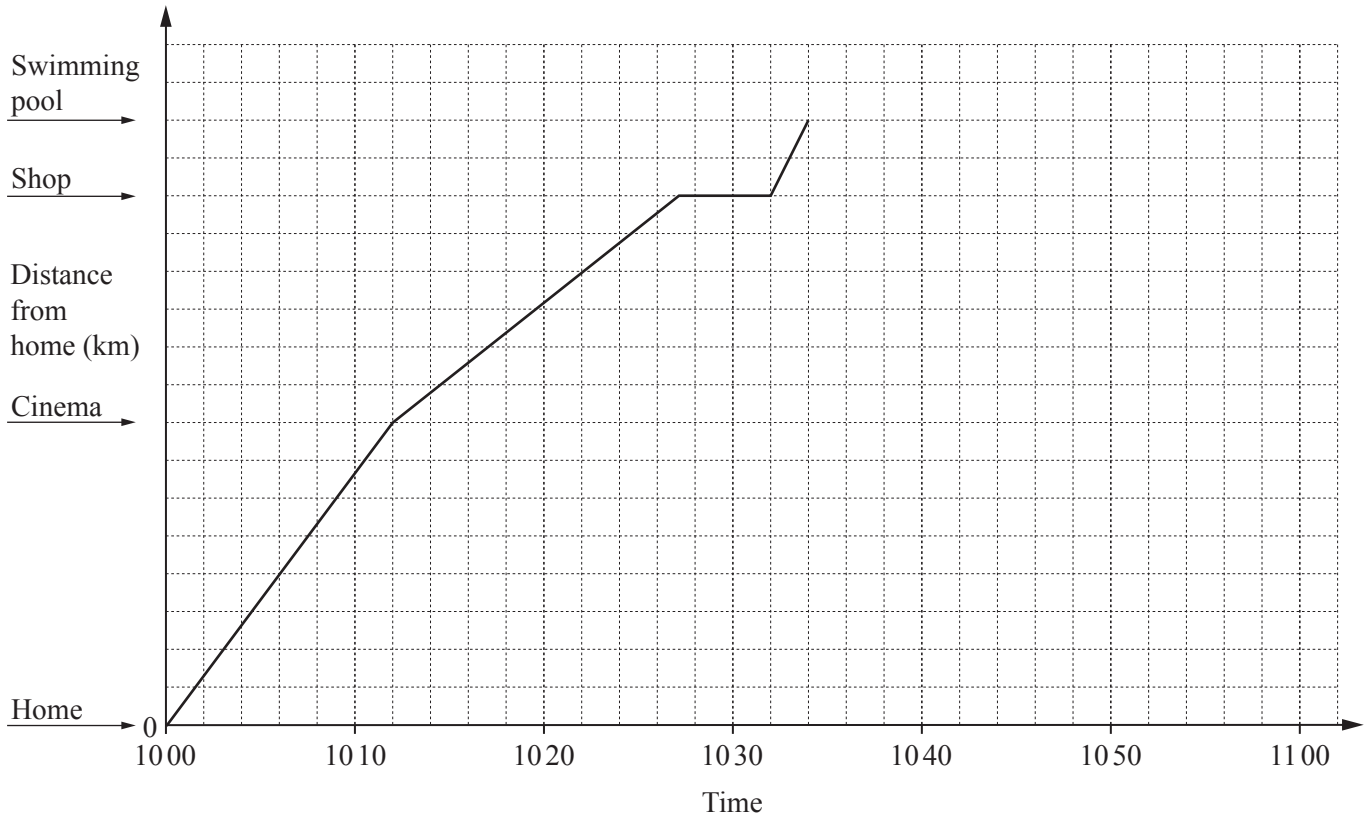
–

(i) On the grid, complete the travel graph for her journey. [2]

(ii) Calculate her average speed, in metres per minute, on her journey home.

..... m/min [2]

3



Abjit cycles from his home to the swimming pool.
The travel graph for his journey is drawn on the grid.
On his journey he passes the cinema and the shop.

(a) Write down where Abjit stops on his journey to the swimming pool.

..... [1]

(b) Abjit is cycling fastest between the shop and the swimming pool.

Explain how you know this from looking at the graph.

..... [1]

Save My Exams! – The Home of Revision

For more awesome GCSE and A level resources, visit us at www.savemyexams.co.uk

- (c) Abjit cycles at 20 km/h from his home to the cinema.
This part of the journey takes 12 **minutes**.

(i) Show that the distance from Abjit's home to the cinema is 4 km.

[2]

- (ii) Complete the scale on the vertical axis of the grid by showing at least two other values.

[1]

- (d) Calculate the speed, in km/h, that Abjit cycles from the cinema to the shop.

..... km/h [2]

- (e) When Abjit arrives at the swimming pool it is closed.
Without stopping at the swimming pool he cycles home at a constant speed.
It takes him 24 minutes to cycle home.

Complete the travel graph for his journey home.

[1]

- (f) Calculate the average speed, in km/h, for the **whole journey**.

..... km/h [3]

Save My Exams! – The Home of Revision

For more awesome GCSE and A level resources, visit us at www.savemyexams.co.uk

(g) Abjit's bicycle wheel has a radius of 29 cm.

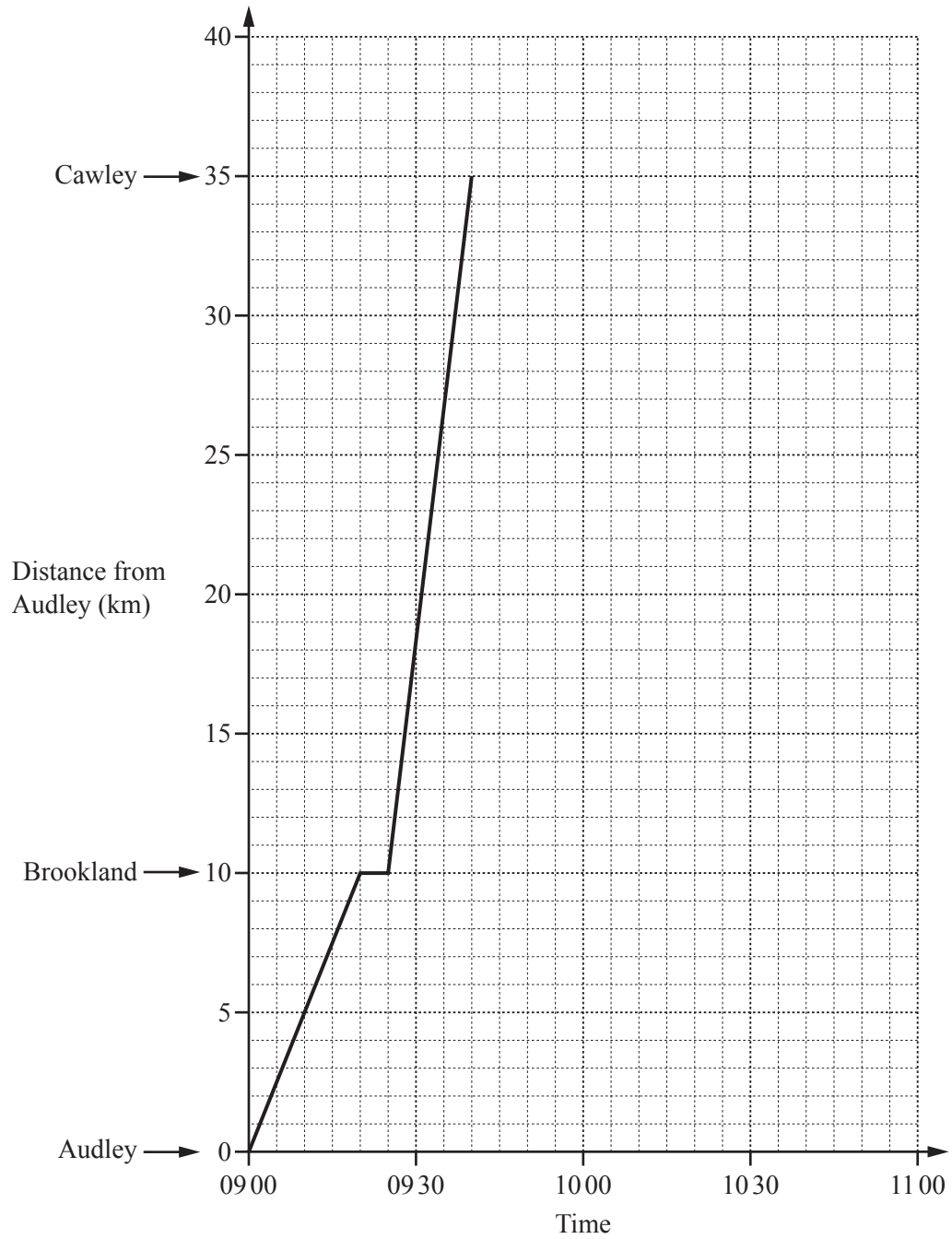
- (i) Calculate the circumference of the wheel.
Give your answer correct to 1 decimal place.

..... cm [3]

- (ii) Calculate the number of complete turns the wheel makes when travelling 500 m.

..... [2]

4



The grid shows the travel graph for a train travelling from Audley to Cawley, stopping at Brookland.

Save My Exams! – The Home of Revision

For more awesome GCSE and A level resources, visit us at www.savemyexams.co.uk

- (a) (i) Between which two towns is the train journey fastest?
Give a reason for your answer.

Answer(a)(i) From to is fastest because
..... [1]

- (ii) Calculate the speed of the train, in kilometres per hour, between Brookland and Cawley.

Answer(a)(ii) km/h [2]

- (b) When the train reaches Cawley, it waits for 10 minutes.
It then returns to Audley without stopping at Brookland.
The return speed of the train is 70 km/h.

- (i) Complete the travel graph for this train. [2]
- (ii) Write down the time this train arrives at Audley.

Answer(b)(ii) [1]

- (c) Trains leave Audley for Cawley every 100 minutes.
The first train of the day is the 09 00 train.

Write down the time that the fourth train leaves Audley for Cawley.

Answer(c) [2]
