

Surname	
Other Names	
Candidate's Signature	

GCSE 9 - 1 Questions

Speed Distance Time Graphs

Calculator Allowed

INSTRUCTIONS TO CANDIDATES

Write your name in the space provided.

Write your answers in the spaces provided in this question paper.

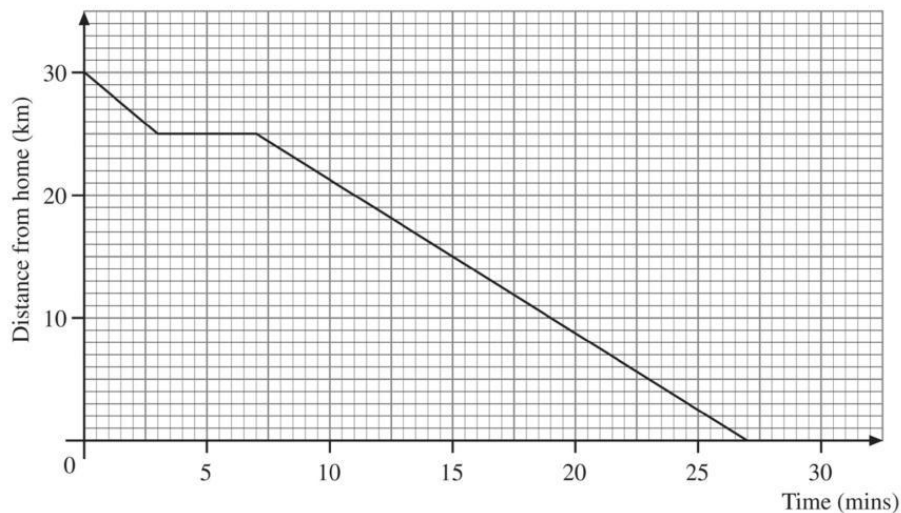
Answer ALL questions.

Any working should be clearly shown in the spaces provided since marks may be awarded for partially correct solutions.

You should have a ruler, compass and protractor where required.

Total Marks :

1) The graph illustrates a man's journey home from work.



(a) At one point on the journey he stopped to get petrol.
What was his average speed on the journey from the petrol station to home?

Answer _____ km/hr [2]

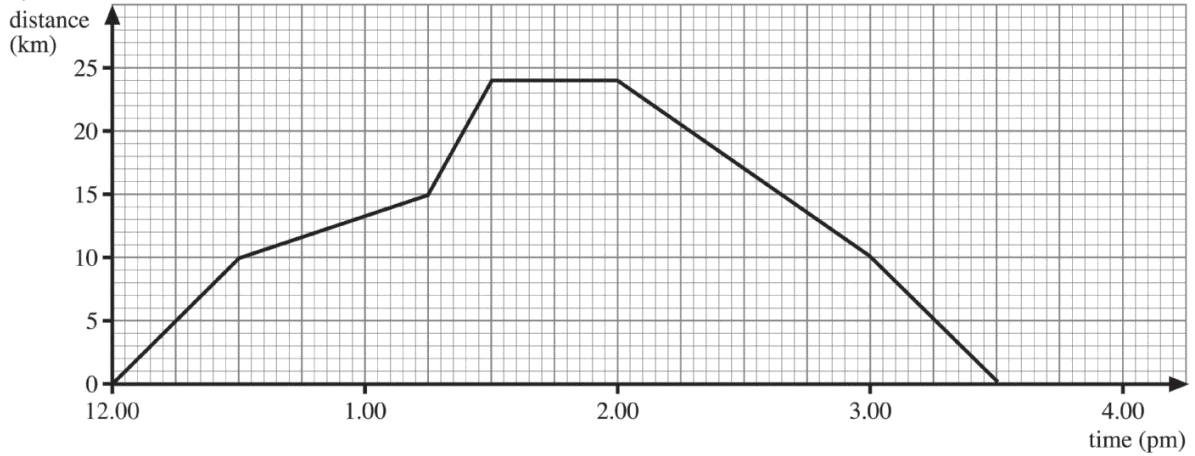
(b) At what stage was he travelling at the fastest average speed?

Answer _____ [1]

(c) The man's son leaves the same workplace 6 minutes after his father and travels home directly at 100 km/hr. By showing his journey on the graph, find how far he is from home when he overtakes his father.

Answer _____ km [3]

2)



This is the distance–time graph for Gareth’s cycle race.

(a) What was happening between 1.30 and 2.00?

Answer _____ [1]

(b) How far had Gareth travelled in the first 15 minutes?

Answer _____ km [1]

(c) What was his average speed during the first $\frac{1}{2}$ hour?

Answer _____ km/h [2]

(d) Between what times was his fastest average speed?

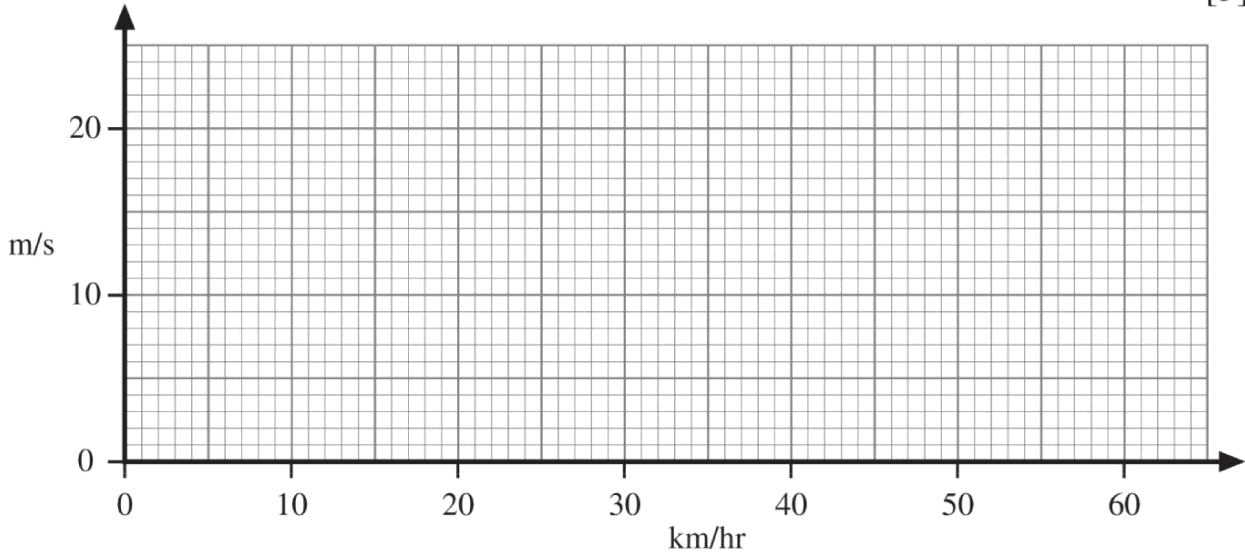
Answer _____ [1]

3)

(a) Use the values in the table to plot the conversion graph from km/hr to m/s.

km/hr	0	20	40	60
m/s	0	5.6	11.1	16.7

[3]



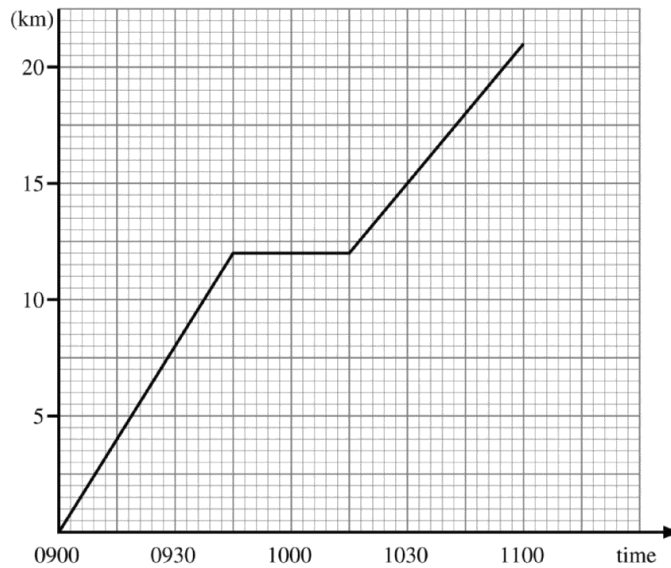
(b) Use your graph to convert 8 m/s into km/hr.

Answer _____ km/hr [1]

(c) The speed limit in a town is 45 km/hr. A motorcyclist is travelling at 12 m/s. Is the motorcyclist exceeding the speed limit? Explain your answer. (You may use the graph.)

Answer _____ because _____
 _____ [1]

4)
Distance from home



The distance–time graph shows the journey of a cyclist from home.

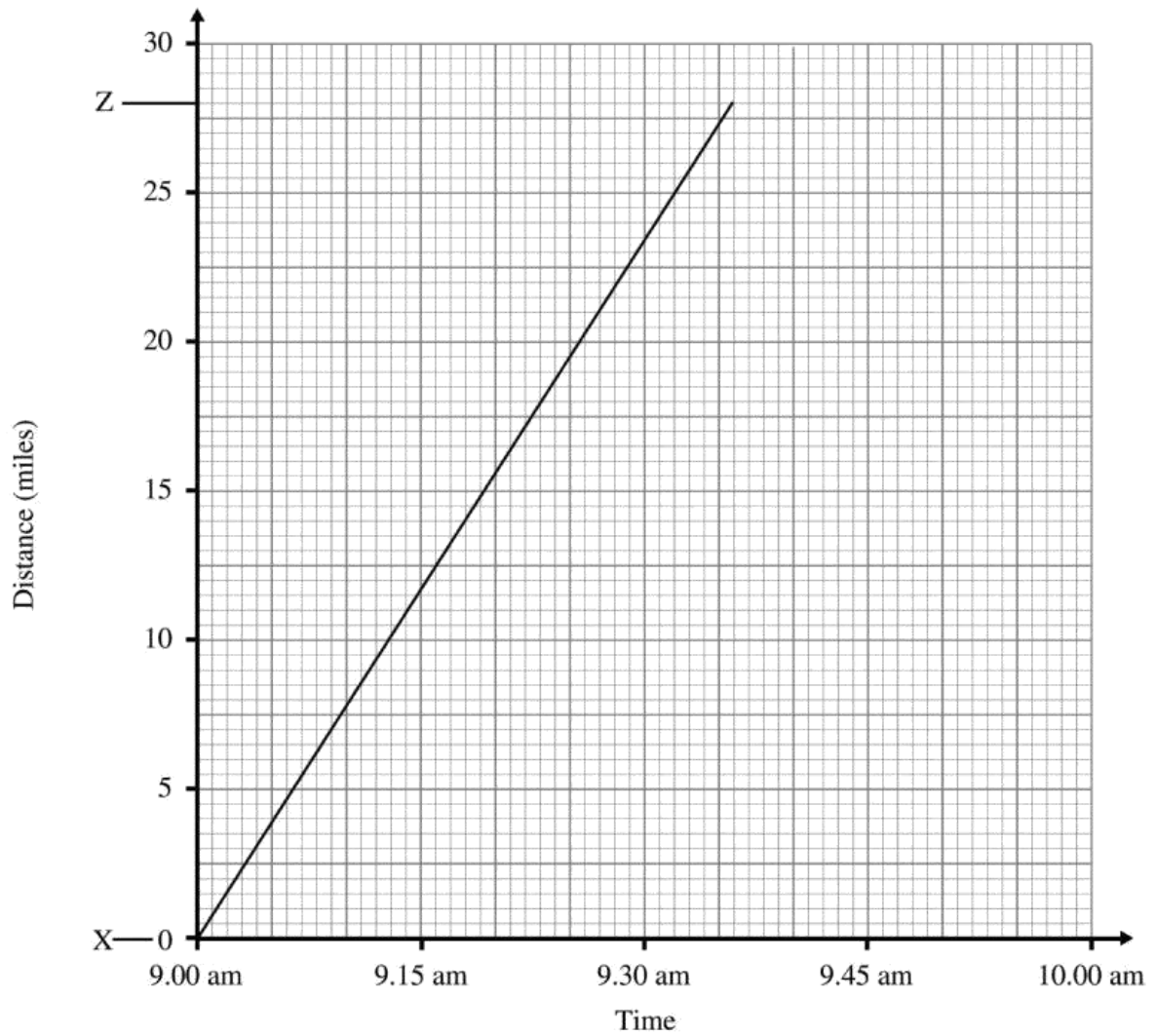
(a) How far was travelled in the 15 minutes before the cyclist stopped?

Answer _____ km [2]

(b) Find her average speed between 1015 and 1030

Answer _____ km/hr [2]

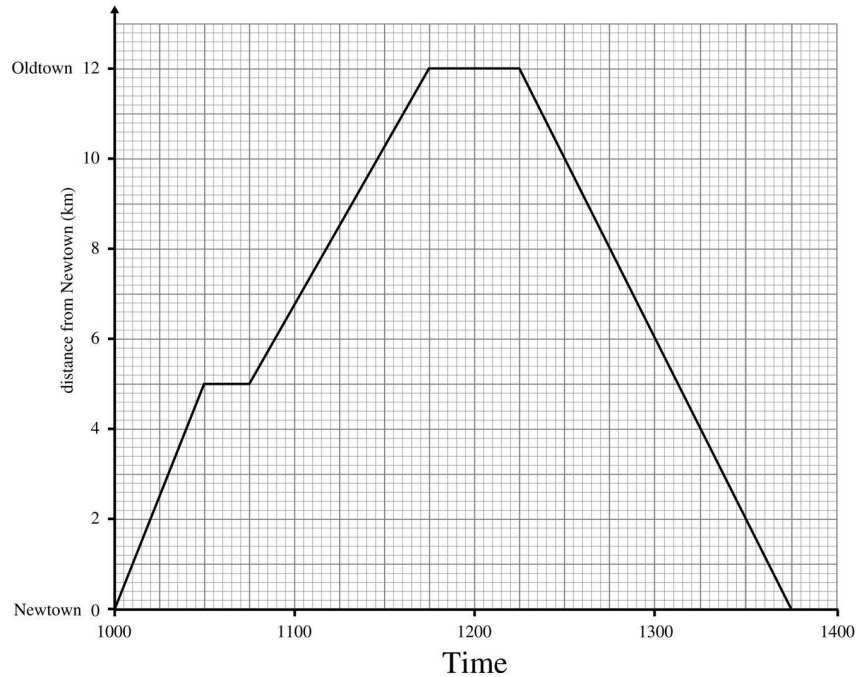
- 5) A car travels a total distance of 28 miles from town X to town Z.
The graph shows its journey.



Calculate the average speed of the car in mph.

Answer _____ mph [2]

- 6) An athlete goes for a run from Newtown to Oldtown and back. His journey is illustrated on the graph.



- (a) What is happening between 1030 and 1045?

Answer _____ [1]

- (b) How far has the athlete run in total?

Answer _____ km [1]

- (c) What is the athlete's speed on the return journey from Oldtown to Newtown?

Answer _____ km/hr [2]

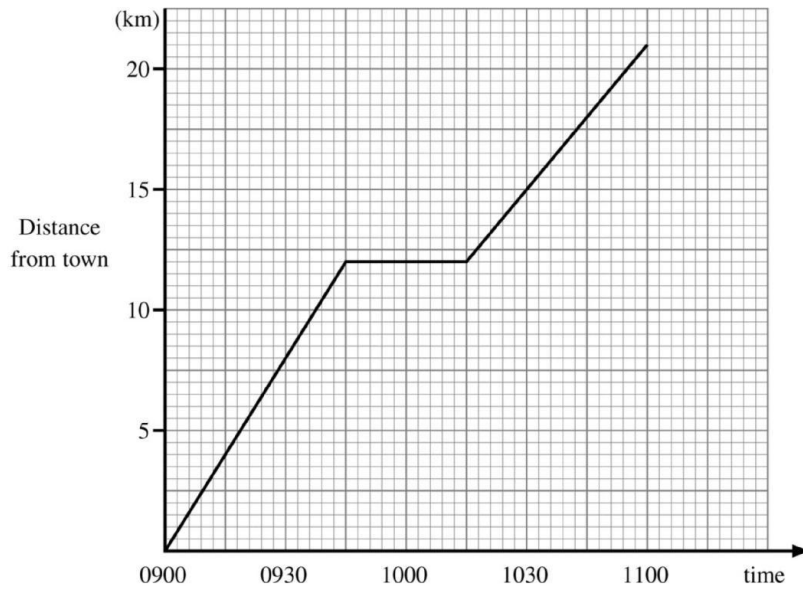
A second athlete leaves Oldtown at 1030 and runs towards Newtown, at a speed of 7 km/hr.

- (i) Illustrate his journey on the graph above. [3]

- (ii) At what time do the two athletes pass each other?

Answer _____ [1]

7)



The distance–time graph shows Mary’s trip on Saturday morning.

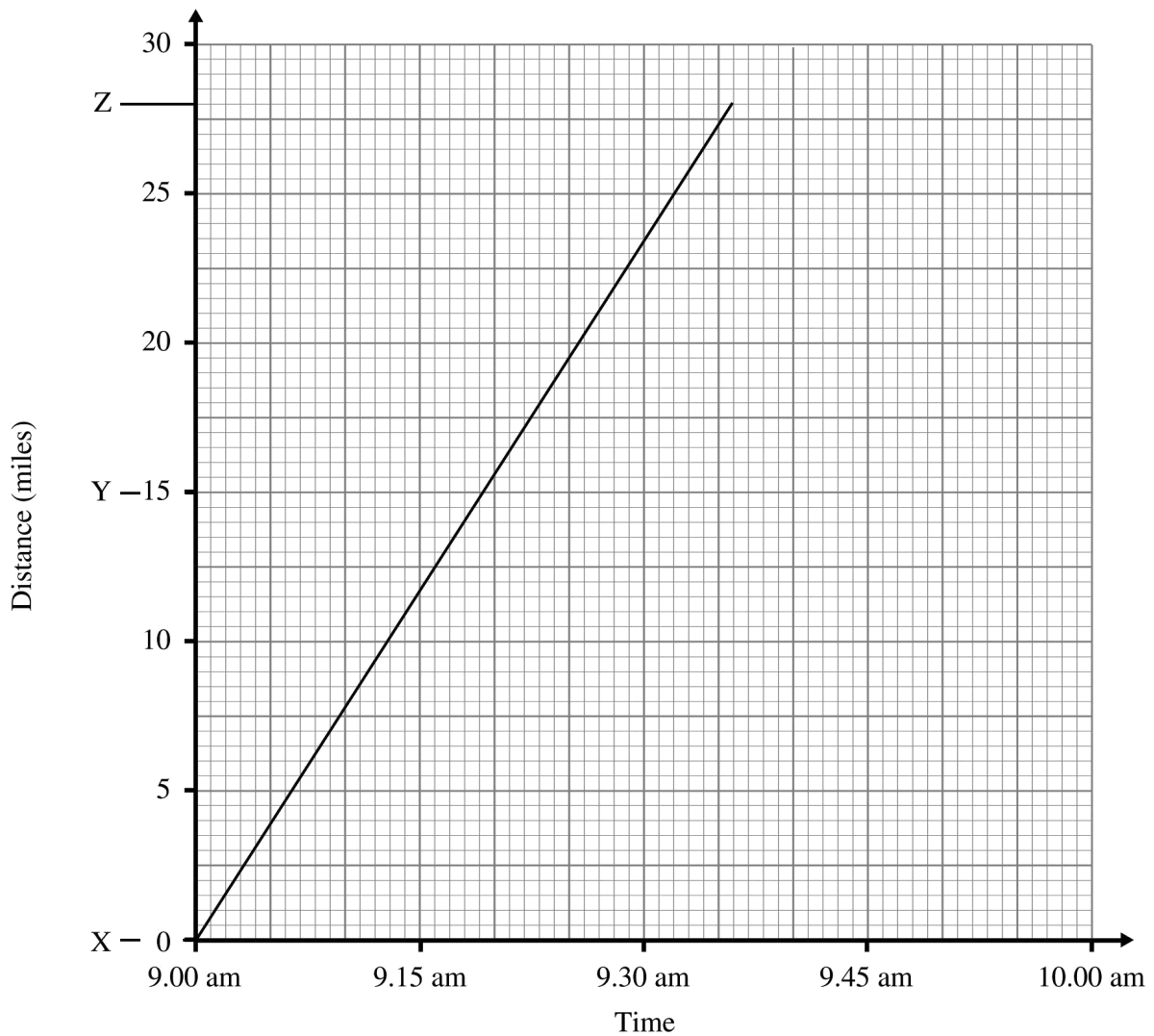
(a) Between what two times was she travelling at her fastest average speed?

Between _____ and _____ [1]

(b) Find Mary’s average speed between 1015 and 1100.

Answer _____ km/hr [3]

- 8) A car travels from town X to town Z passing through town Y, 15 miles from X. The graph shows its journey.

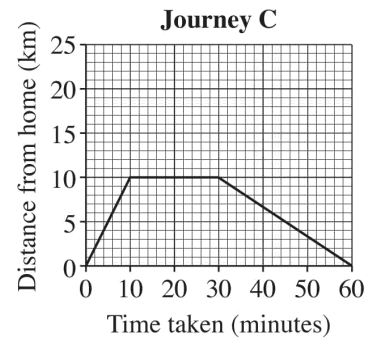
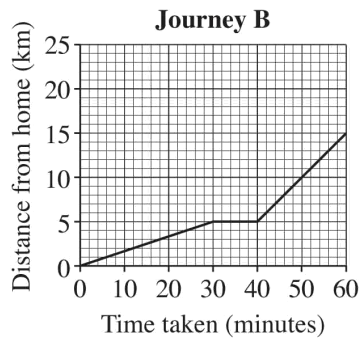
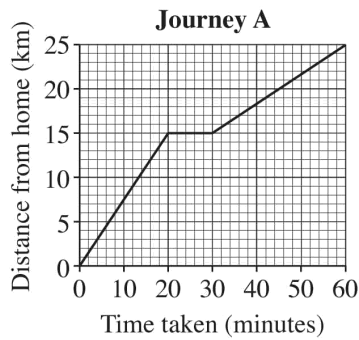


Another car leaves town Z at 9.10 am and travels to town Y arriving at 9.30 am. It stops there for 3 minutes and then travels to town X at an average speed of 45 mph.

- (a) Show the journey of this car on the graph as it travels from town Z to town X. [3]
- (b) At what time do the cars pass each other?

Answer _____ am [1]

9) The graphs show 3 different journeys by bicycle.



(a) Which of the journeys has the longest stopping time?

Answer _____ [1]

(b) Which graph could describe the following journey?

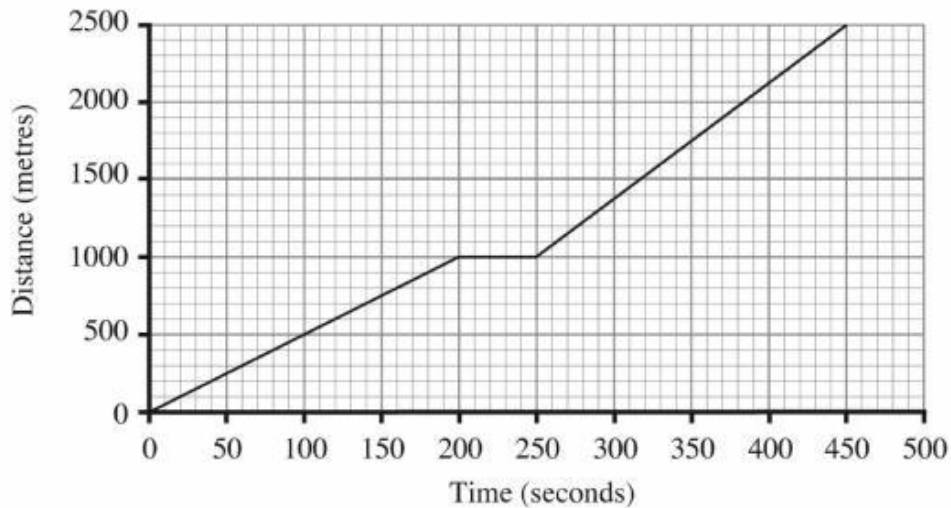
“Ryan cycles uphill. He then rests before continuing his journey downhill”.

Answer _____ [1]

(c) What is the average speed for the first part of **Journey B**?

Answer _____ km/h [2]

10) The graph illustrates Pete's journey as he cycled from home to school.



(a) Between what times was he cycling at his fastest average speed?

Answer _____ and _____ [1]

(b) He stopped at a shop on the way to school.
Calculate his average speed for the journey **between the shop and the school**.

Answer _____ m/s [2]

(c) Pete's sister Jade, left home **4 minutes** after him, and travelled to the same school by car.
She arrived in school **1 minute** before him.

(i) Show Jade's journey on the graph above. [2]

(ii) How far were they **from the school** when Jade overtook Pete?

Answer _____ m [1]