Name: Solutions

Speed - Time - Distance

Date:

Time:

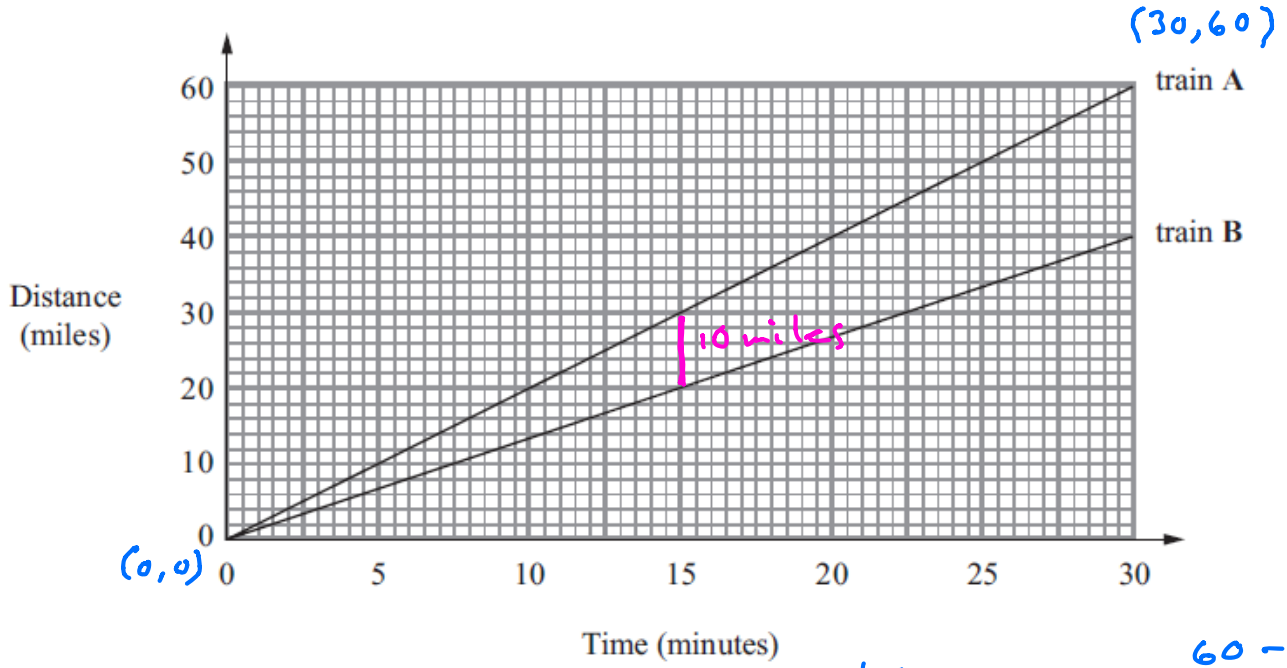
Total marks available:

Total marks achieved: _____

Questions

Q1.

The graph shows the distance travelled by two trains.



(a) Work out the gradient of the line for train **A**.

$\frac{\text{Vertical Change}}{\text{Horizontal Change}} = \frac{60-0}{30-0}$

$= 2$ miles per minute

.....

(2)

(b) Which train is travelling at the greater speed?
You must explain your answer.

A is faster because greater slope means greater gradient which represents the speed

.....

(1)

(c) After how many minutes has train **A** gone 10 miles further than train **B**?

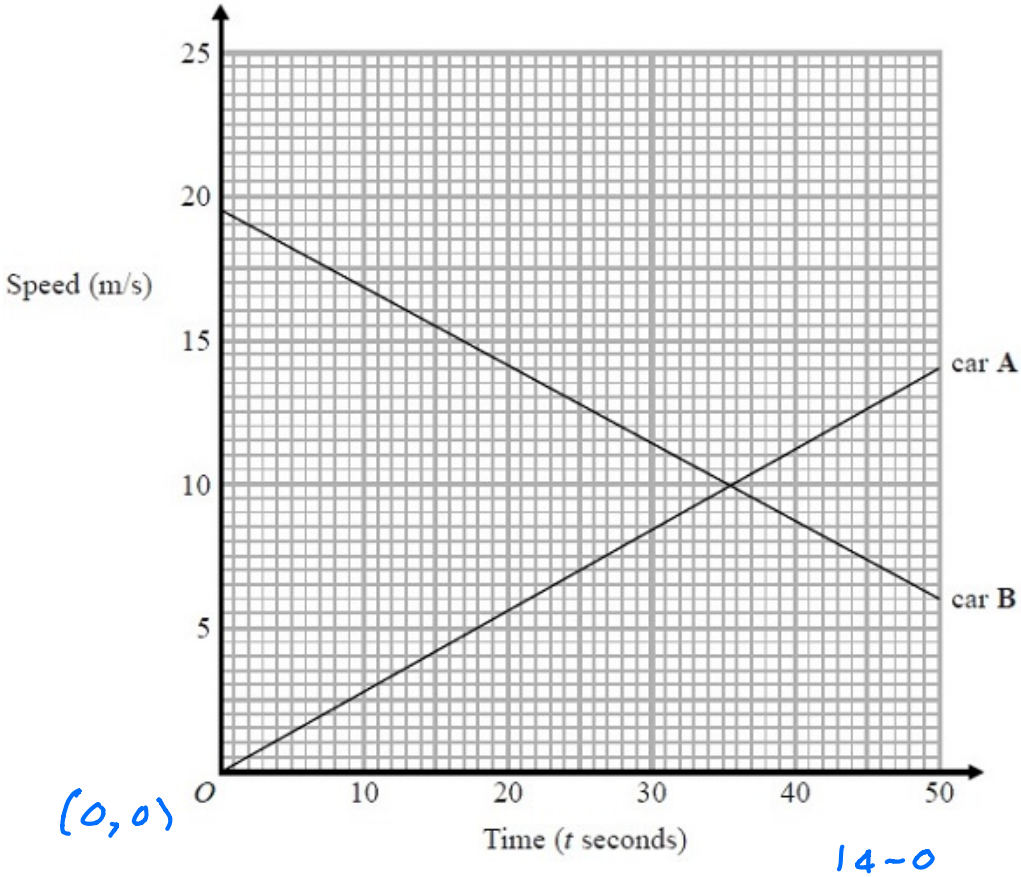
15 ..... minutes

(1)

(Total for Question is 4 marks)

Q2.

The graph shows information about the speeds of two cars.



(a) Work out the gradient of the line for car A.

$\frac{14-0}{50-0} = = \frac{14}{50} = \frac{28}{100}$

0·28

.....

(2)

(b) After how many seconds is the speed of car A equal to the speed of car B?

35.5 ..... seconds

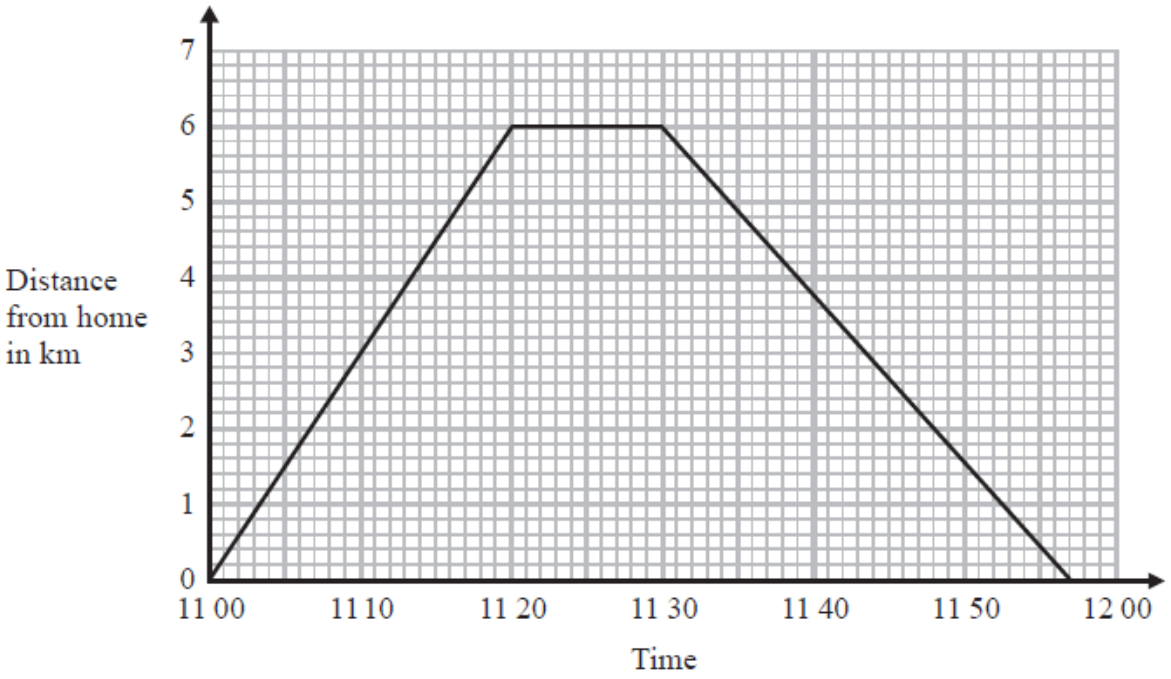
(1)

(Total for Question is 3 marks)

Q3.

Amina cycled from her home to a shop.
She then cycled home.

The travel graph shows information about Amina's journey.



At 11 20 Amina stopped to go into the shop.

(a) How many minutes did Amina stop for?

10 ..... minutes

(1)

Amina took more time to cycle home from the shop than she took to cycle to the shop.

(b) How many minutes more?

Going 11.20 - 11.00 = 20 min

Returning 1157 - 1130 = 27 min

7 ..... minutes

(2)

(c) What was the total distance Amina cycled?

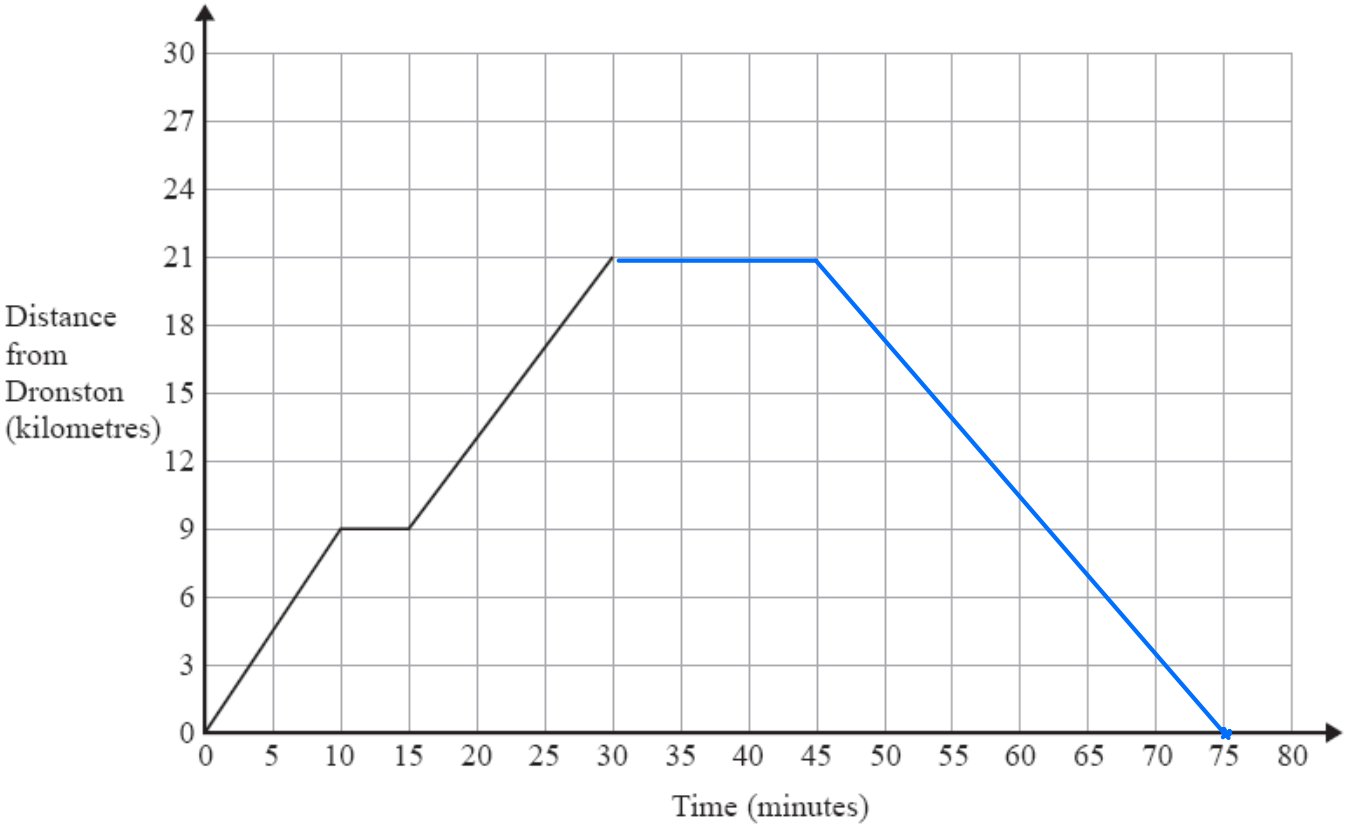
12 ..... km

(1)

(Total for question = 4 marks)

Q4.

A coach travels from Dronston to Luscoe.
The travel graph for this journey is shown below.



(a) Work out the average speed of the coach, in kilometres per hour, for the first 10 minutes of the journey.

9 km in 10 min
9 x 6 = 54 km in 60 min

54 ..... km/h

(2)

The coach stops in Luscoe for 15 minutes.
The coach then returns to Dronston at a constant speed of 42km/h.

(b) Show this information on the travel graph.

21 km at 42 Km/h takes ½ an hour

(3)

(Total for question = 5 marks)

Q5.

Sarah goes to the gym on her way to work.
The table shows what she wants to do before arriving at work.

Activity	Time (mins)
Drive from home to gym	10
Exercise at gym	45
Shower and change	20

Drive from gym to work	25

She has to arrive at work at 08 50

(a) What is the latest time she can leave home?

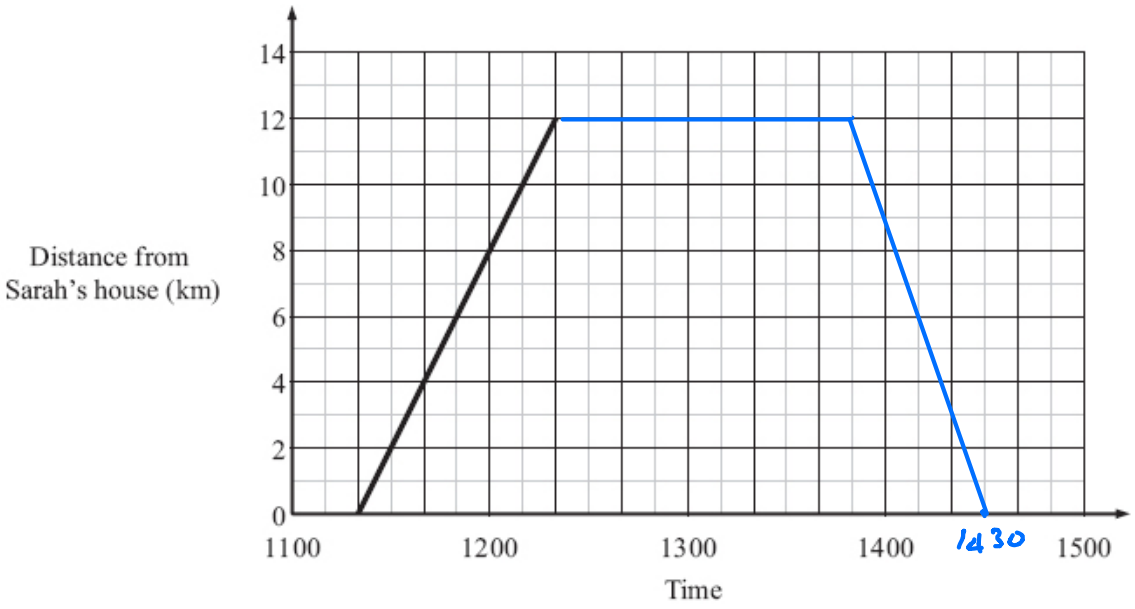
08.50
1.40 −
07.10

07.10 .....

(3)

Each Saturday, Sarah cycles from her house to the gym.

The travel graph shows Sarah's journey to the gym.



(b) What time does she leave home?

1120

(1)

(c) How far is the gym from Sarah's house?

12 km

(1)

Sarah stays at the gym for 1½ hours.

She then cycles back to her house at 18 km/h.

(d) Complete the travel graph.

$T = \frac{D}{S} = \frac{12}{18} = \frac{6}{9} = \frac{2}{3} = 40\text{ min}$

(3)

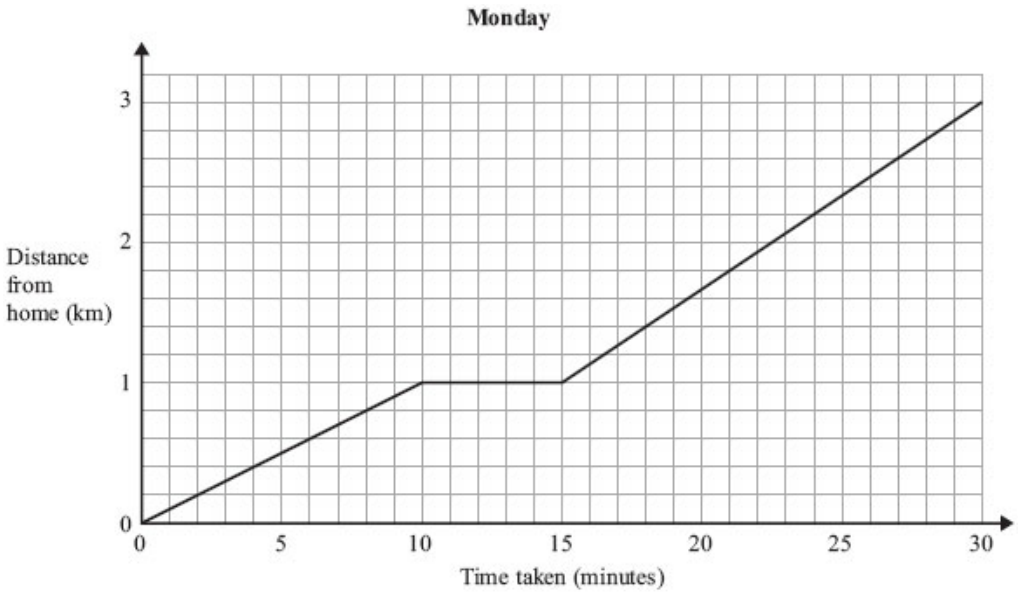
(Total for Question is 8 marks)

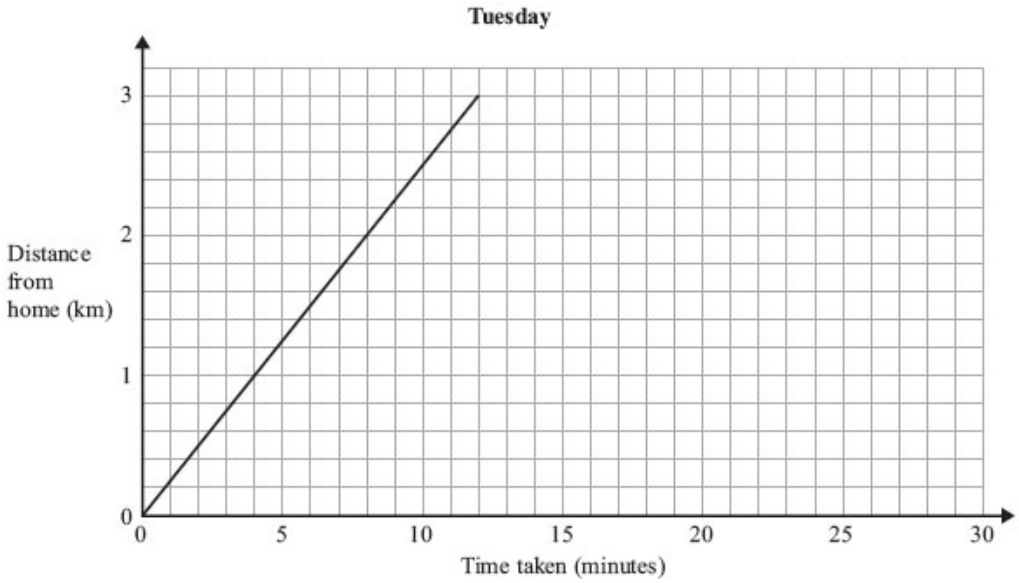
Q6.

On Monday, Holly walked from her home to school.
She stopped at her friend's house on the way to school.

On Tuesday, Holly cycled from her home to school.

The travel graphs show Holly's journey on Monday and on Tuesday.





(a) Write down the distance from Holly's home to school.

3 . . . . . km

(1)

(b) Write down how long Holly stopped at her friend's house on Monday.

5 . . . . . minutes

(1)

Holly took less time to get to school on Tuesday than on Monday.

(c) How many minutes less?

30 − 12 = 18

18 . . . . . minutes

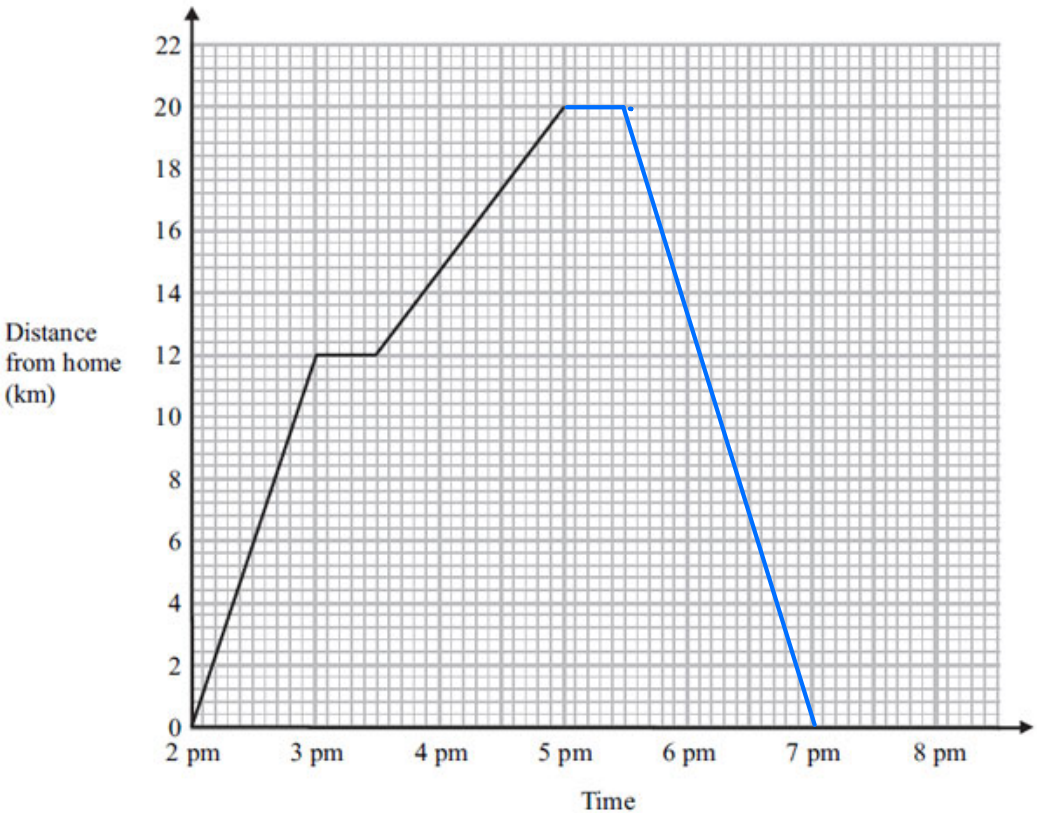
(2)

(Total for Question is 4 marks)

Q7.

Simon went for a cycle ride.
He left home at 2 pm.

The travel graph represents part of Simon's cycle ride.



At 3 pm Simon stopped for a rest.

(a) How many minutes did he rest?

30 . . . . . minutes

(1)

(b) How far was Simon from home at 5 pm?

20 . . . . . km

(1)

At 5 pm Simon stopped for 30 minutes.
Then he cycled home at a steady speed.

It took him 1 hour 30 minutes to get home.

(c) Complete the travel graph.

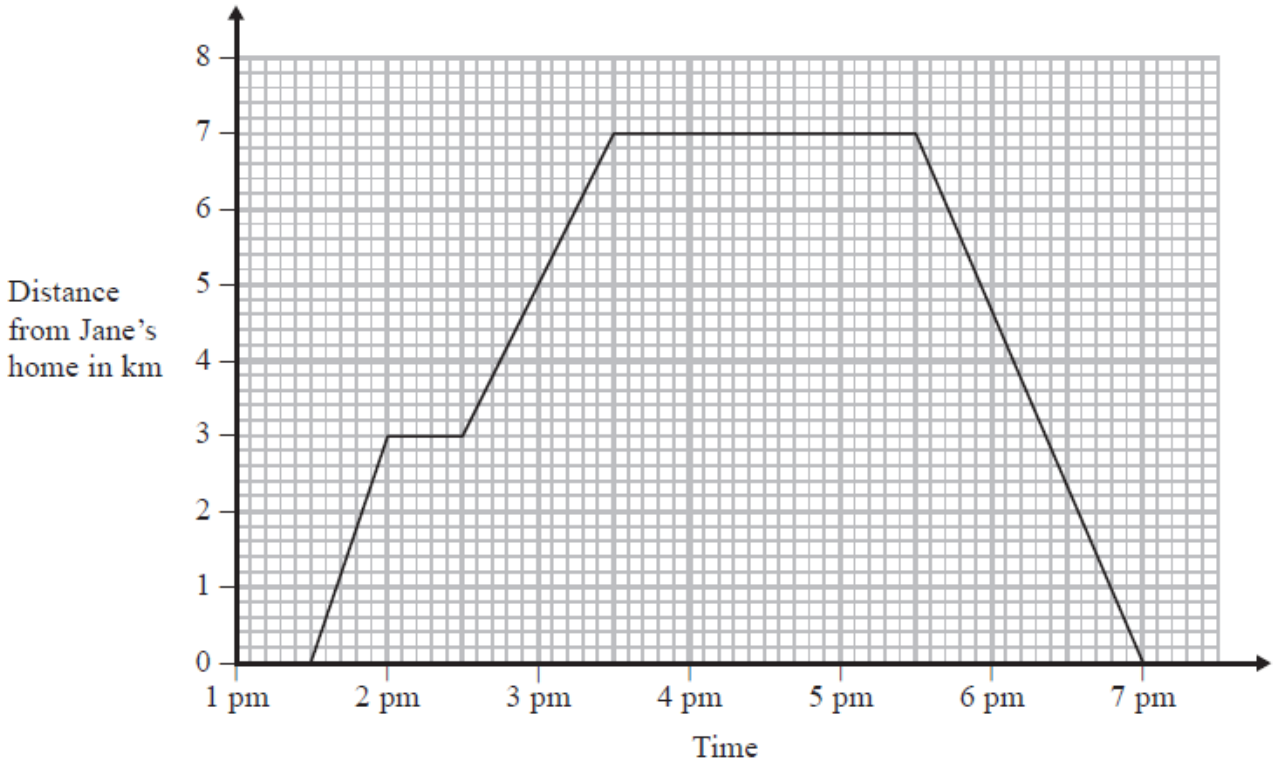
(2)

(Total for Question is 4 marks)

Q8.

Jane walked from her home to the ice rink and then walked back home.

The travel graph for Jane's journey to the ice rink and back home is shown below.



On the way to the ice rink Jane stopped at her friend's house.

(a) How long did Jane stay at her friend's house?

30 mins .....

(1)

(b) How far is it from her friend's house to the ice rink? 7 − 3 = 4 km

..... km

(1)

(c) What time did Jane leave the ice rink?

5.30 pm .....

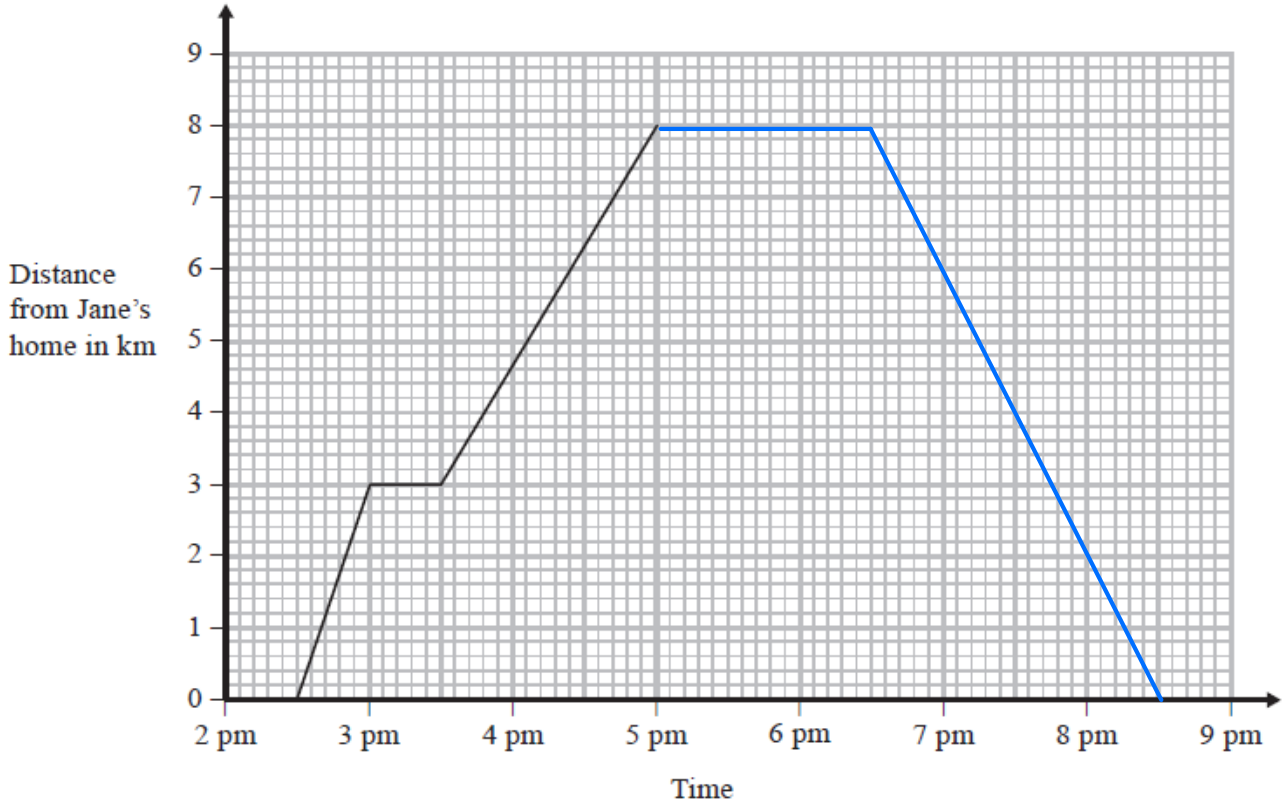
(1)

(Total for question = 3 marks)

Q9.

Jane walked from her home to the ice rink.

The travel graph for Jane's journey to the ice rink is shown below.



On the way to the ice rink Jane stopped at her friend's house.

(a) How far is it from her friend's house to the ice rink? 8 − 3 = 5

5 ..... km

(1)

Jane was at the ice rink for 1 hour 30 minutes.
She then walked home at a steady speed.
Jane took 2 hours to walk home.

(b) Complete the travel graph for this information.

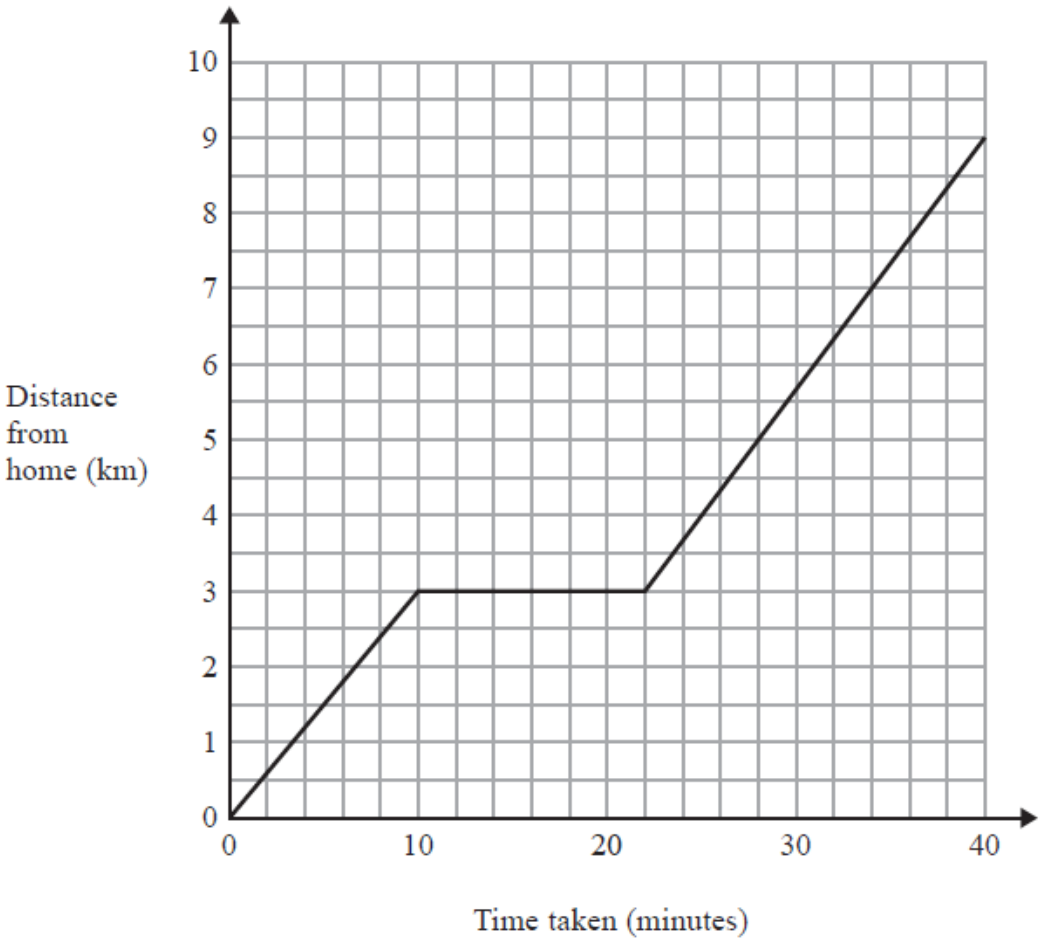
(2)

(Total for question = 3 marks)

Q10.

One day Jane cycled from home to college.
She stopped at a shop on the way to college.

The travel graph shows Jane's journey from home to college.



(a) Write down the distance from Jane's home to college.

9 .....km

(1)

(b) Write down how long Jane stopped at the shop.

22 - 10

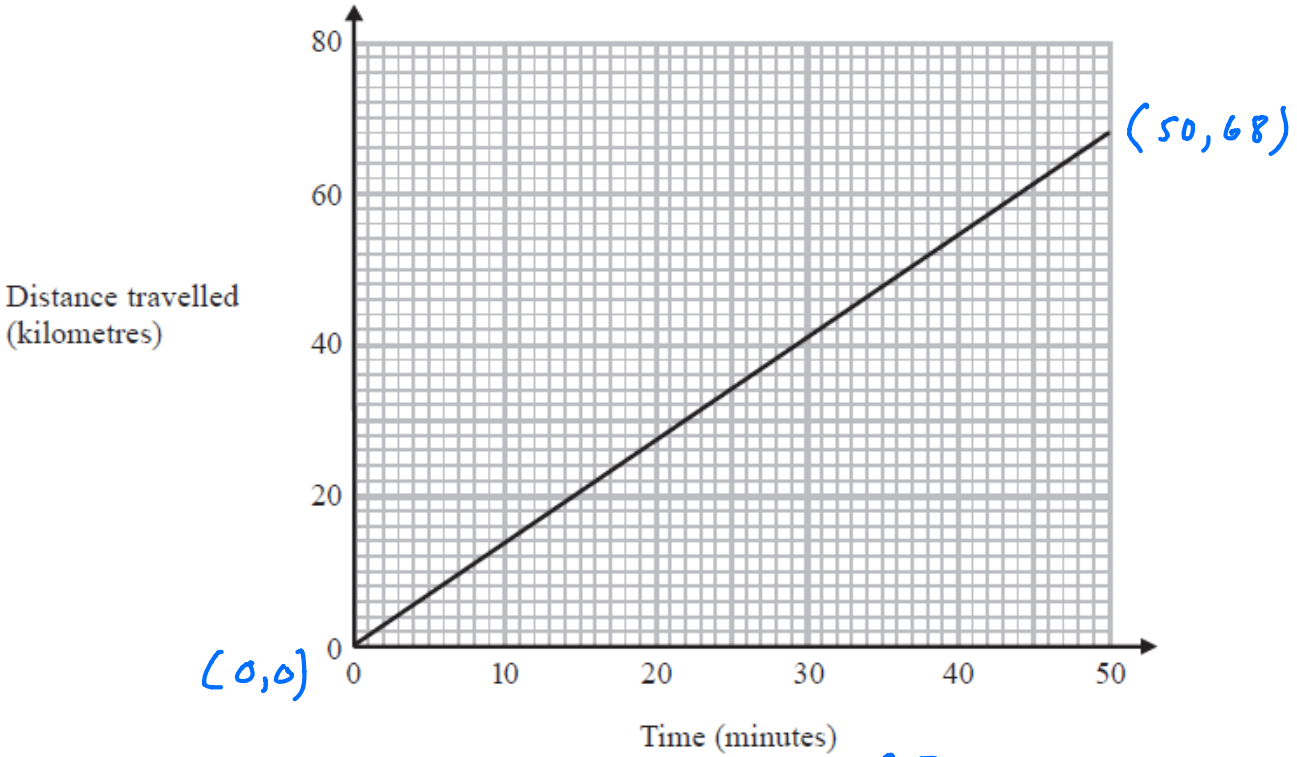
12 .....minutes

(1)

(Total for question = 2 marks)

Q11.

The graph shows information about the distances travelled by a lorry.



The graph is a straight line.

gradient $= \frac{68-0}{50-0} = \frac{68}{50} = \frac{34}{25}$

(a) Work out the gradient of the straight line.

1.36 km/min

.....

(2)

(b) Write down a practical interpretation of the value you calculated in part (a).

speed in km per min

.....

.....

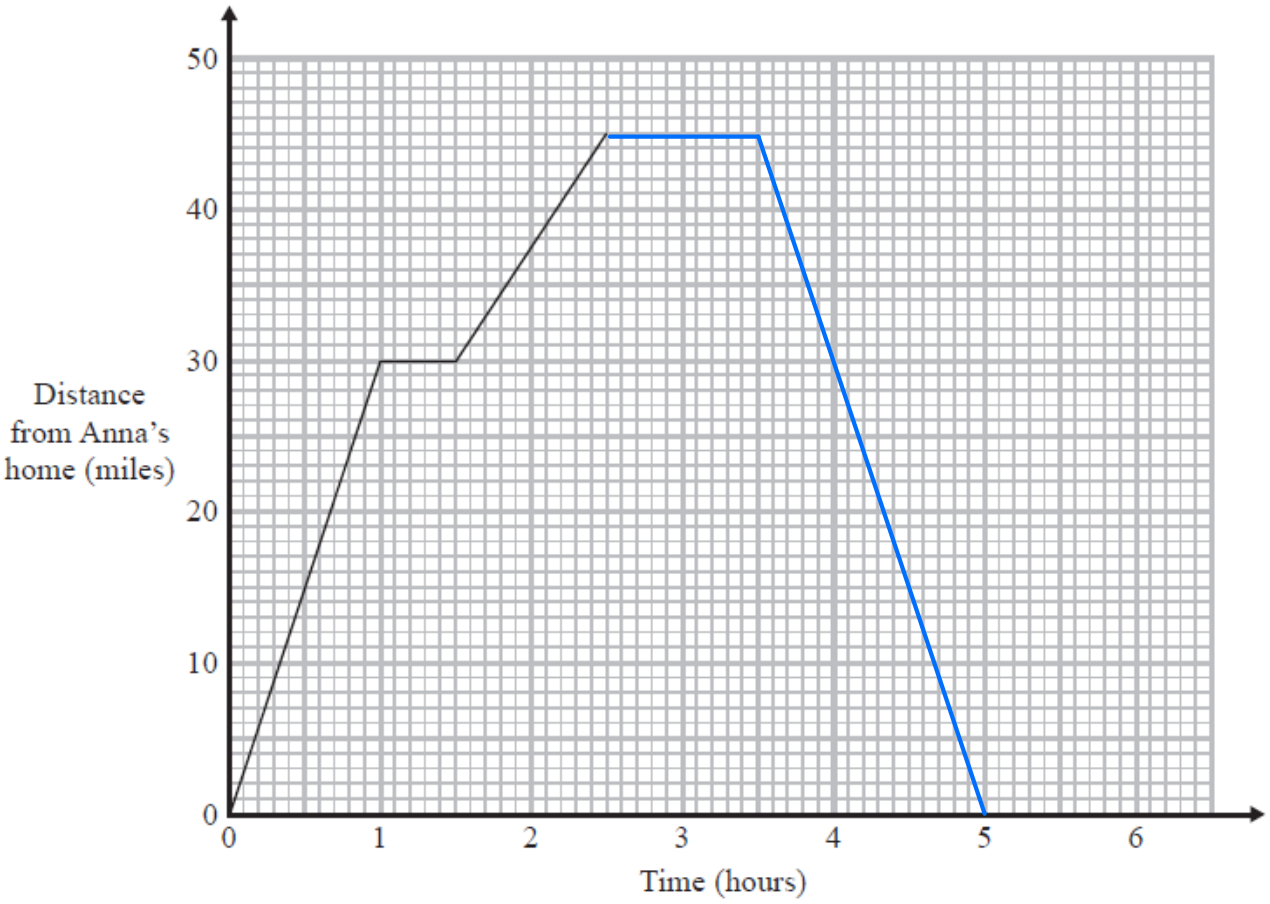
(1)

(Total for question = 3 marks)

Q12.

Anna drives 45 miles from her home to a meeting.

Here is the travel graph for Anna's journey to the meeting.



Anna's meeting lasts for 1 hour.
She then drives home at a steady speed of 30 miles per hour with no stops.

Complete the travel graph to show this information.

(Total for Question is 2 marks)

$$\text{Time} = \frac{\text{Dist}}{\text{Speed}} = \frac{45}{30} = \frac{3}{2} = 1\tfrac{1}{2}\text{ hrs}$$