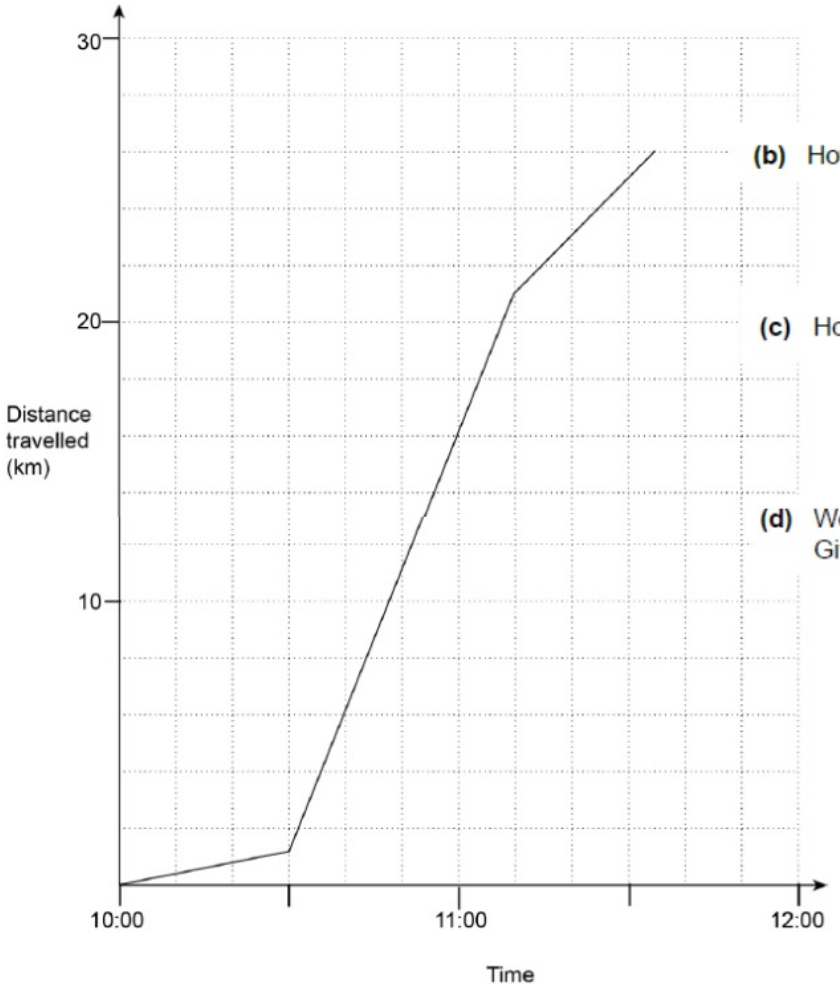
R23...Speed - Distance Time Graphs

OCR

Created by W Neill

11 Rohit completed a triathlon.
In the triathlon he swam first, then cycled and finally ran.
He was given this record of his triathlon.



(a) State one assumption that was made when the graph was drawn.

(b) How far did Rohit run?

(c) How long did Rohit cycle for?

(d) Work out Rohit's average speed when he was cycling.
Give your answer in km per hour.

(d) .....km per hour **[3]**

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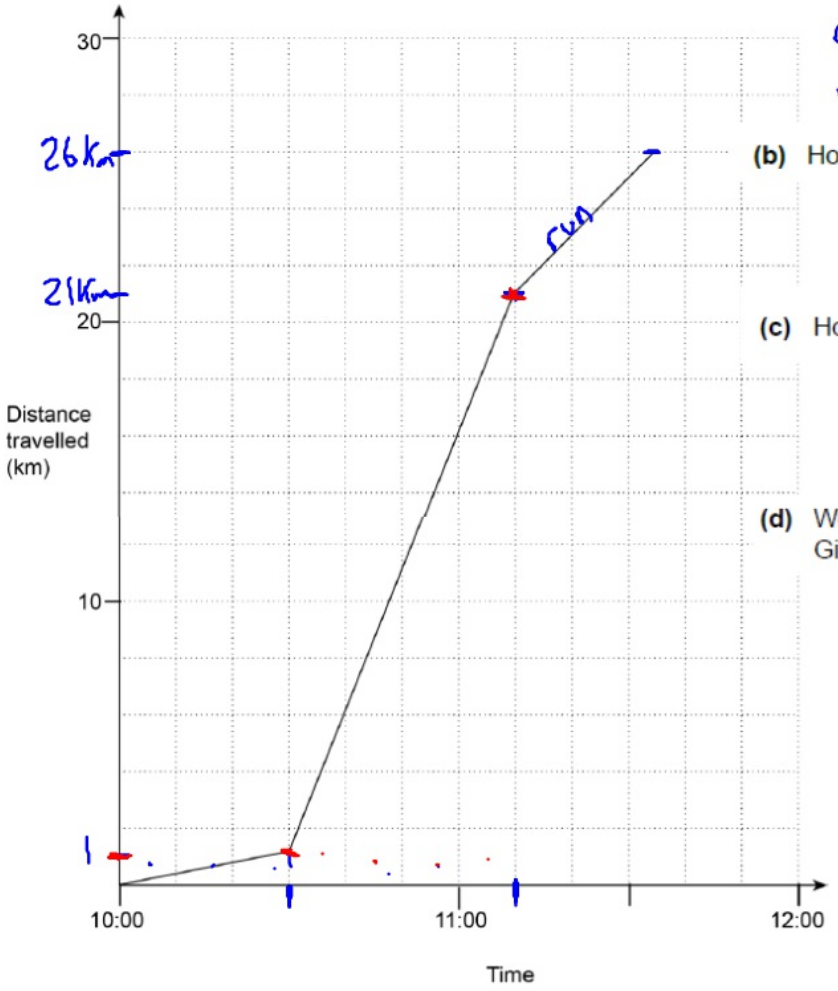


(a) State one assumption that was made when the graph was drawn.

as lines are straight, it is assumed all parts were done at a constant speed

(b) How far did Rohit run?

26 - 21 = 5km

(c) How long did Rohit cycle for?

6 boxes = 60 min
1 box = 10 min
4 boxes = 40 min ✓

(d) Work out Rohit's average speed when he was cycling.
Give your answer in km per hour.

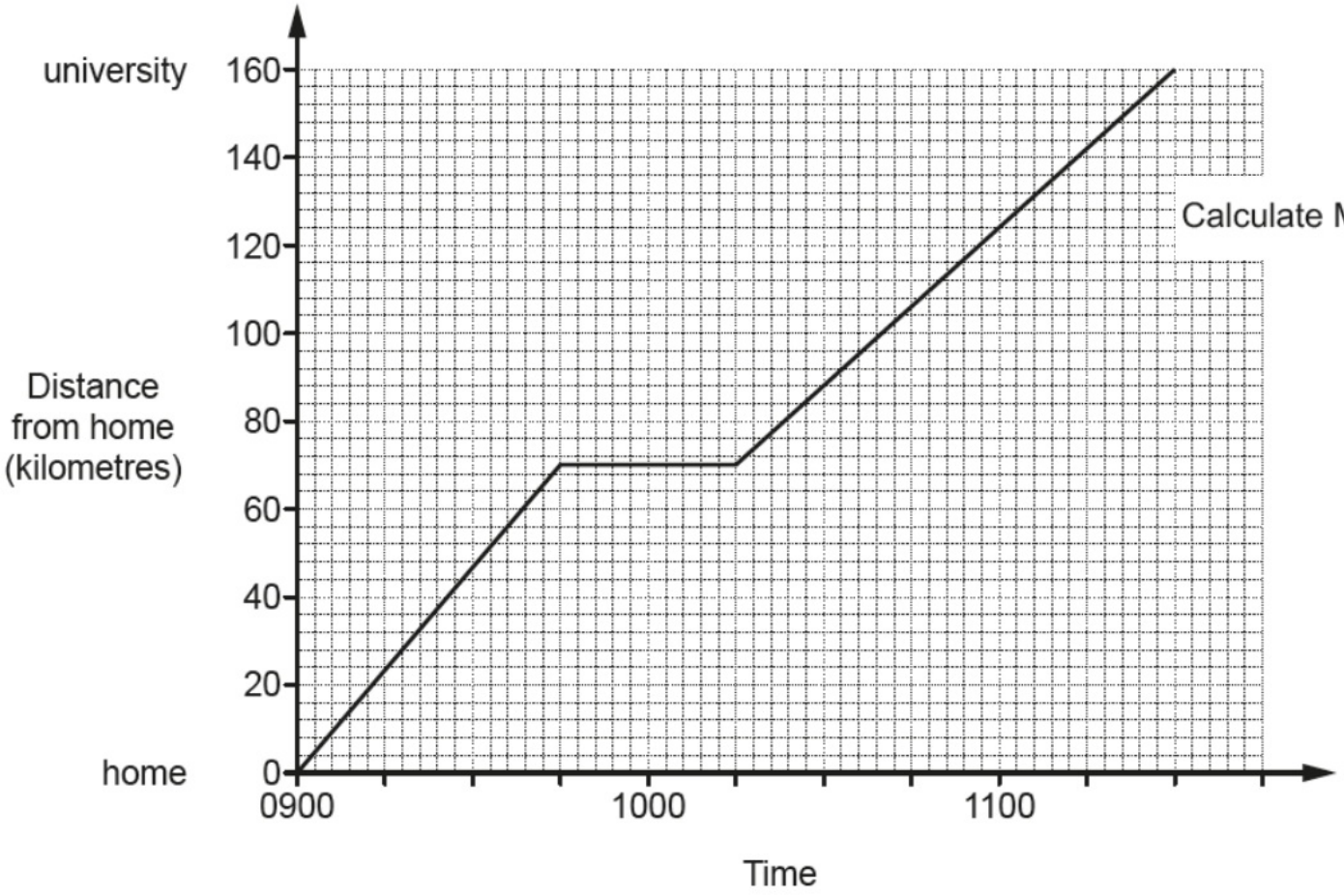
per hour

÷2 (40 min = 20km) ÷2
(20 min = 10km)
x3 (60 min = 30km) x3

(d) 30 km per hour **[3]**

Video created by W Neill

15 The graph shows Mia's journey from her home to university.



Calculate Mia's average speed for the whole journey.

..... km/h **[3]**

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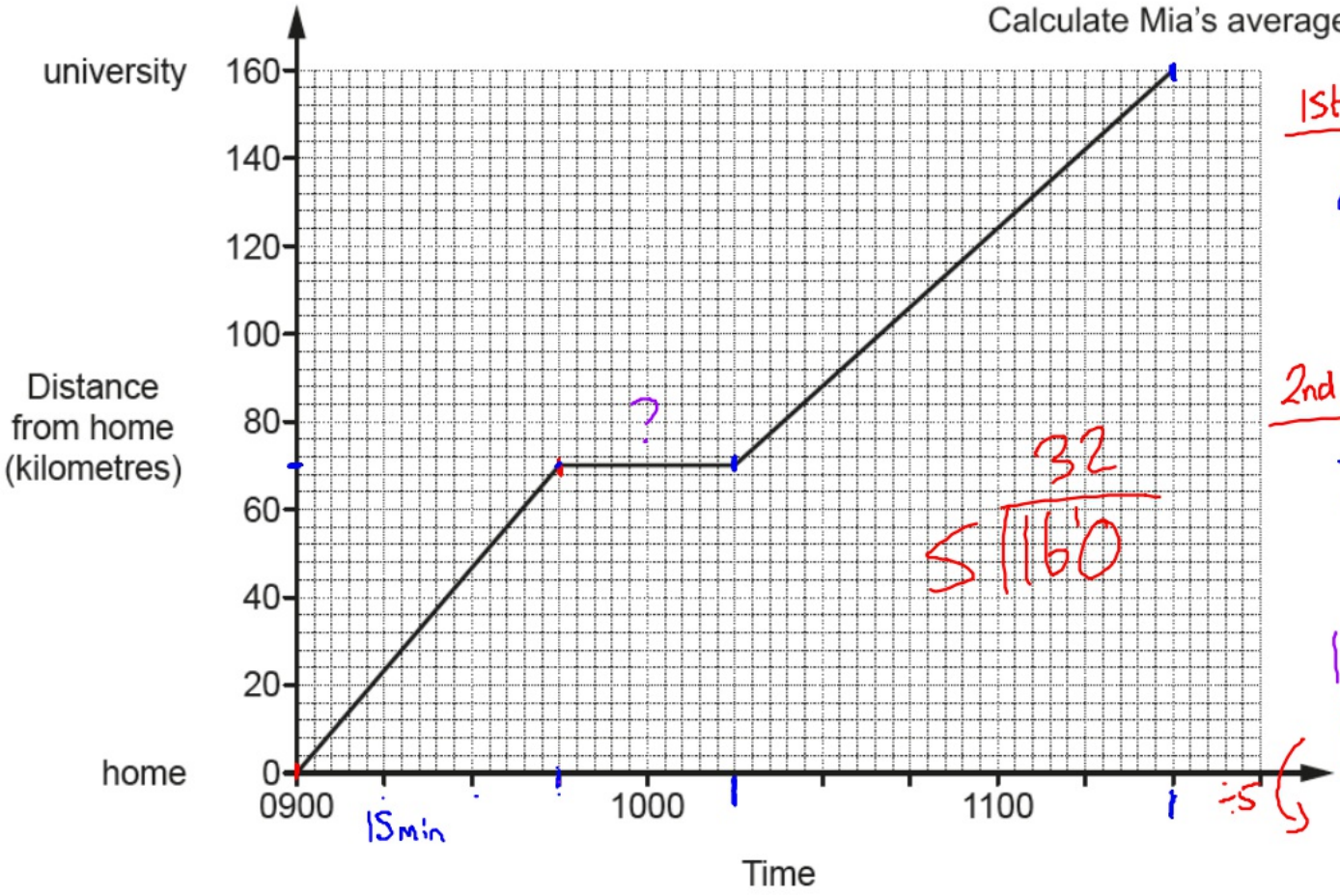


Calculate Mia's average speed for the whole journey.

p/h

1st part

45min = 70km

2nd part

75min = 90km

Overall

120min = 160km

150min = 160km ÷5

30min = 32km

60min = 64km

32
5 | 160

..... 64 ..... km/h **[3]**

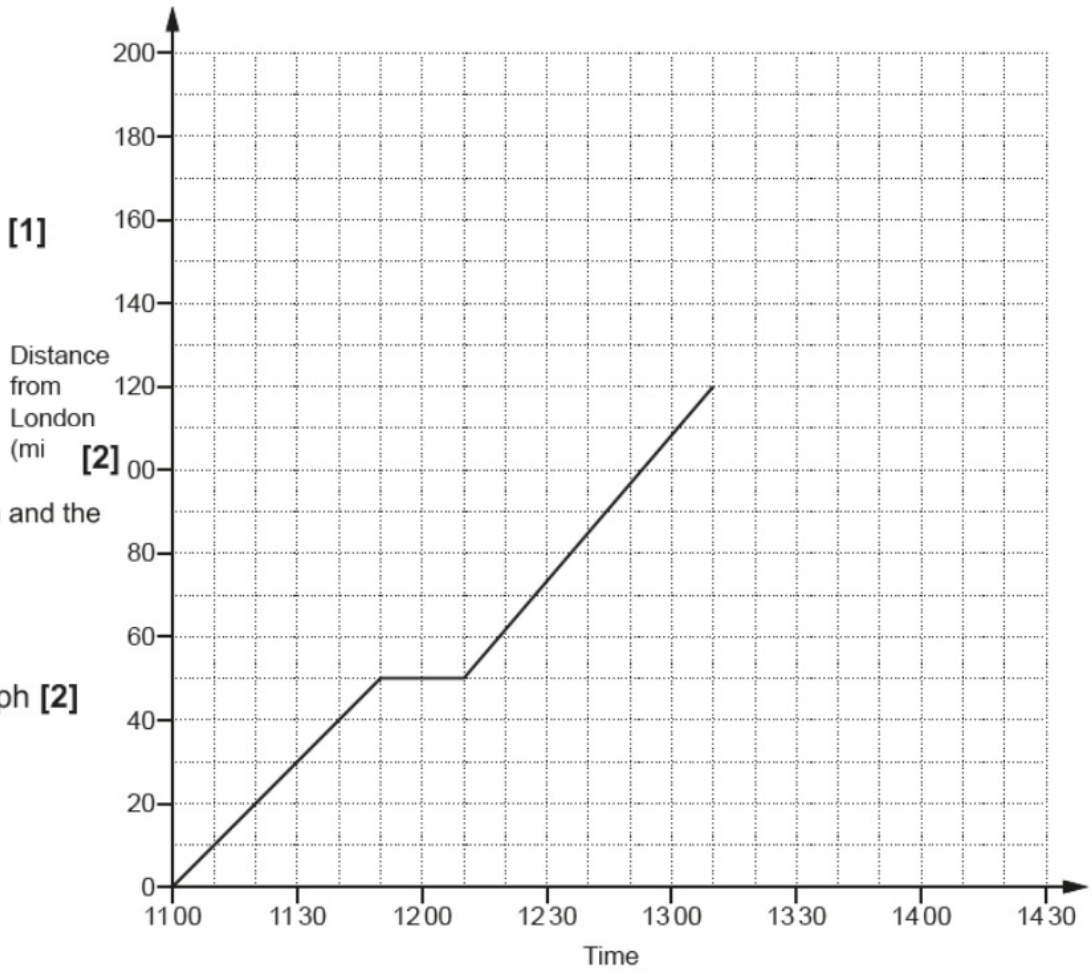
Created by W Neill

13 This graph shows part of Lucy's car journey from London to Sheffield.
The car made one stop at a service station.

Use the graph to answer these questions.

(a) For how long did the car stop at the service station?

(a) ..... minutes **[1]**



[2]

(b) Work out the average speed of the car, in miles per hour, between London and the service station.

(b) ..... mph **[2]**

(c) Sheffield is 180 miles from London.
Lucy arrived in Sheffield at 14 20.

Complete the graph.

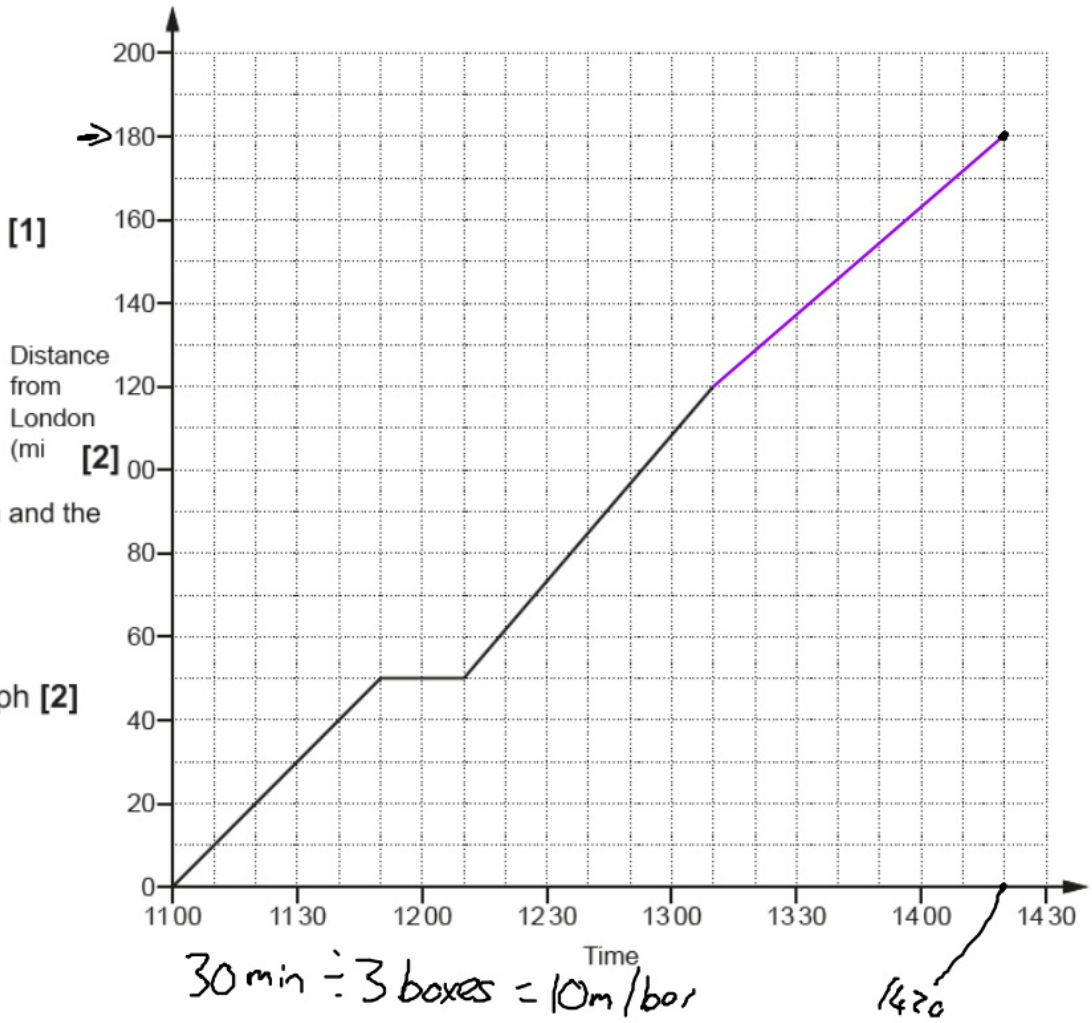
Created by W Neill

13 This graph shows part of Lucy's car journey from London to Sheffield.
The car made one stop at a service station.

Use the graph to answer these questions.

(a) For how long did the car stop at the service station?

(a) 20 minutes **[1]**



[2]

(b) Work out the average speed of the car, in miles per hour, between London and the service station.

per hr

50 min = 50 miles

60 min = 60 miles

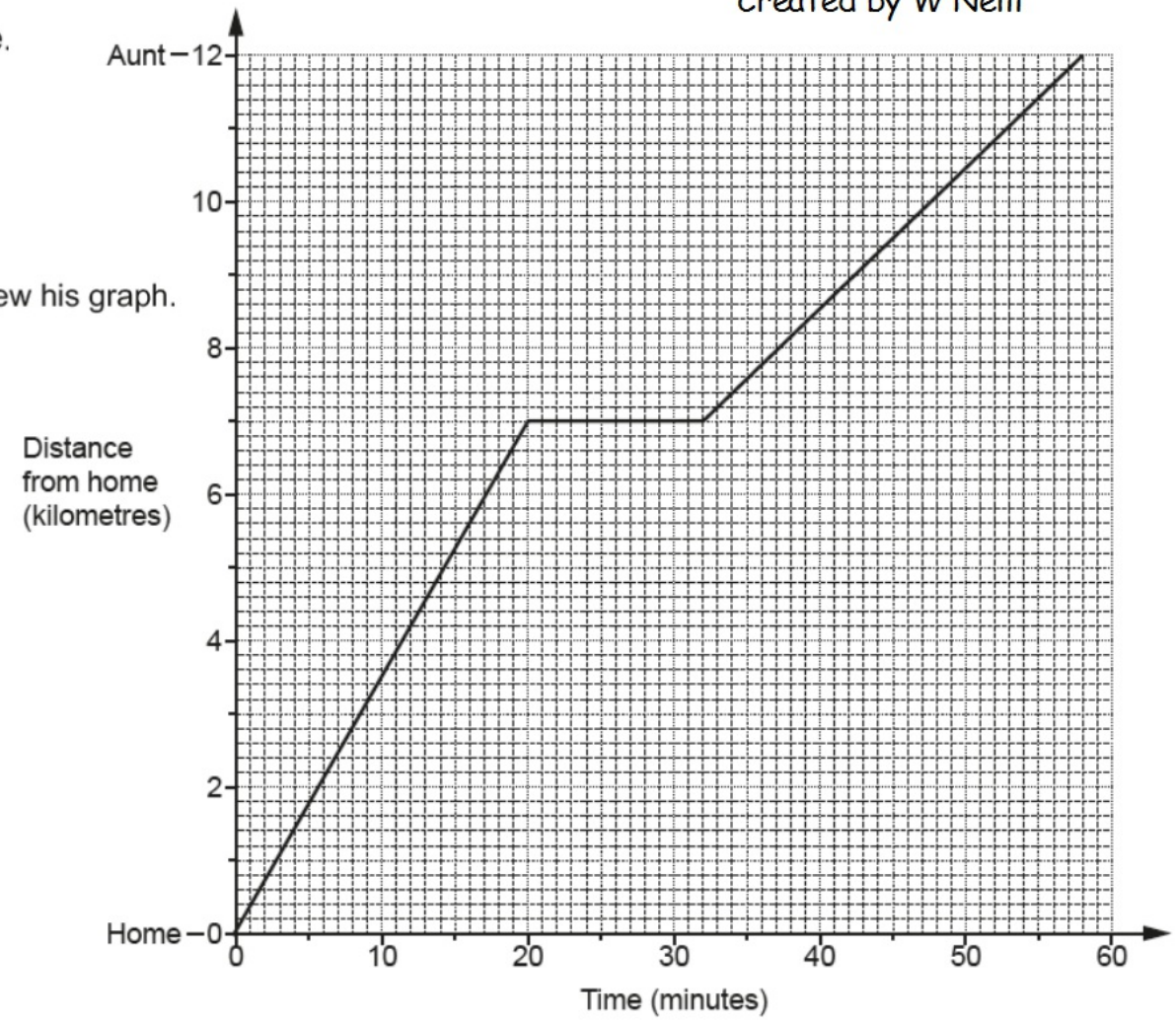
(b) 60 mph **[2]**

(c) Sheffield is 180 miles from London.
Lucy arrived in Sheffield at 14 20.

Complete the graph.

17 Viraj cycled from his home to visit his aunt.
R23 He drew this graph to show his journey.
He stopped at a shop 7 km from his home.

Created by W Neill



(a) State one assumption that Viraj made when he drew his graph.

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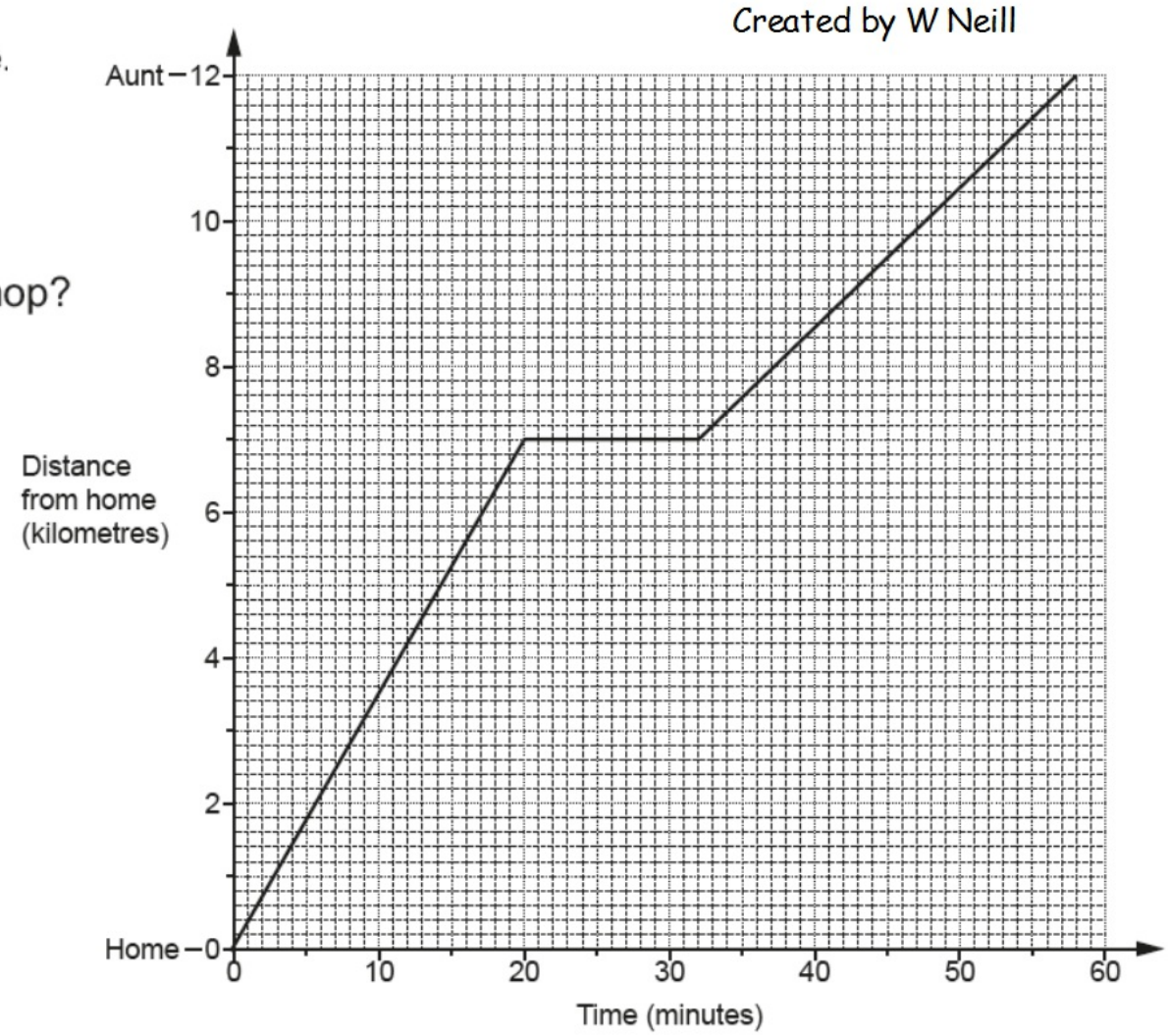

(b) For how long did Viraj stop at the shop?

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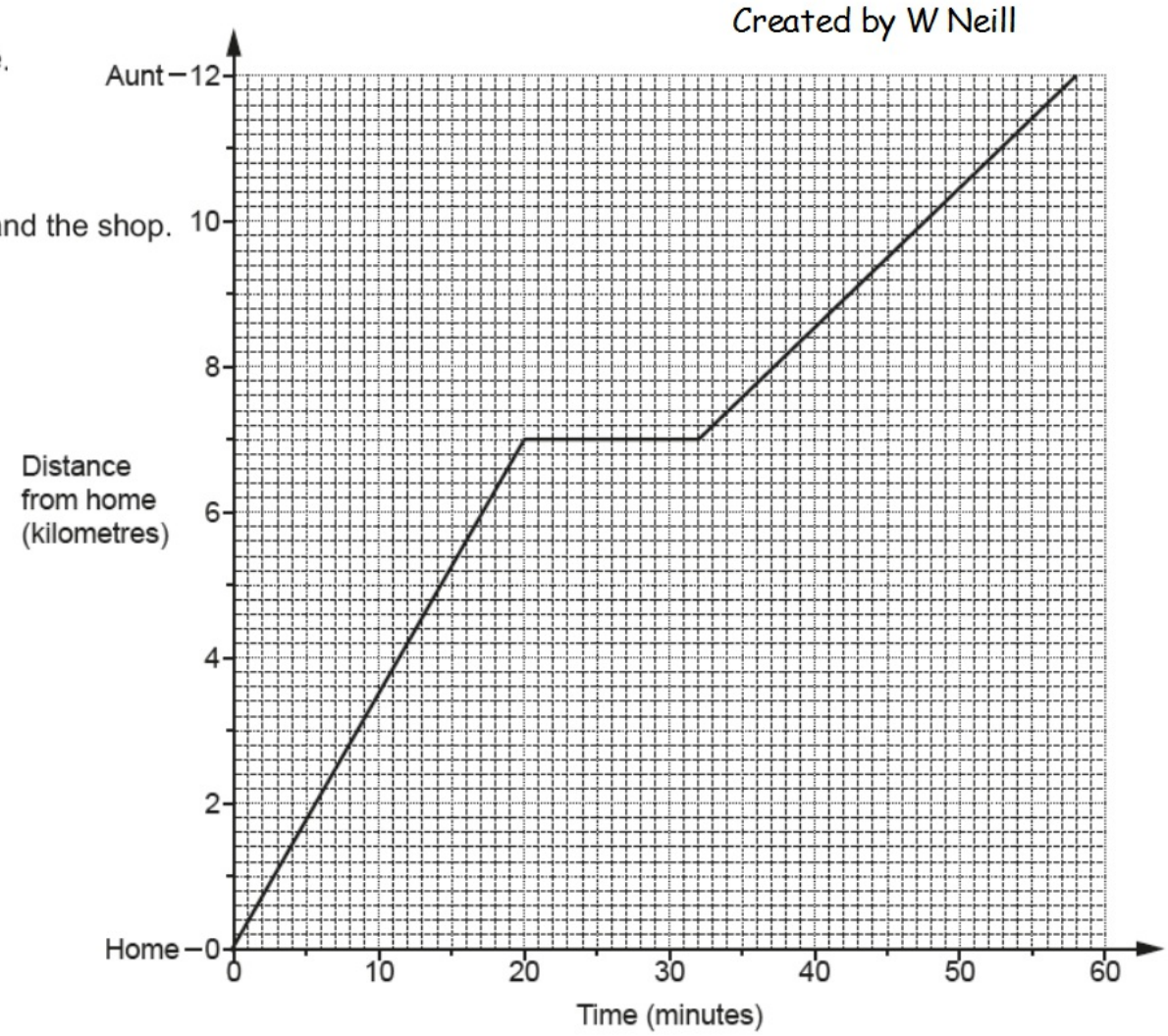
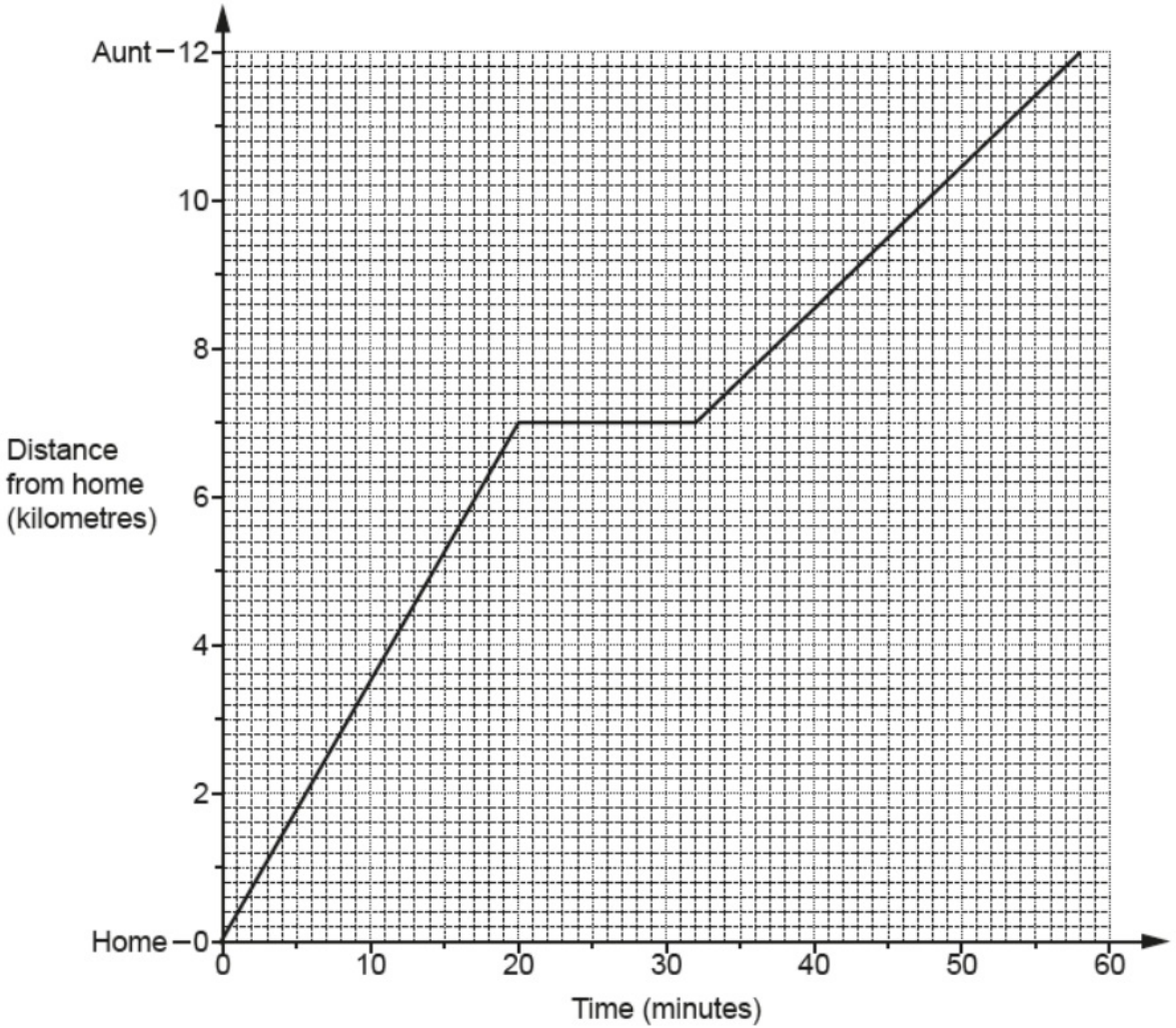


(c) Work out Viraj's average speed between his home and the shop.
Give your answer in metres per minute.

(d) How can you tell, without doing any calculations, that Viraj's average speed between his home and the shop is greater than his average speed between the shop and his aunt?

Created by W Neill



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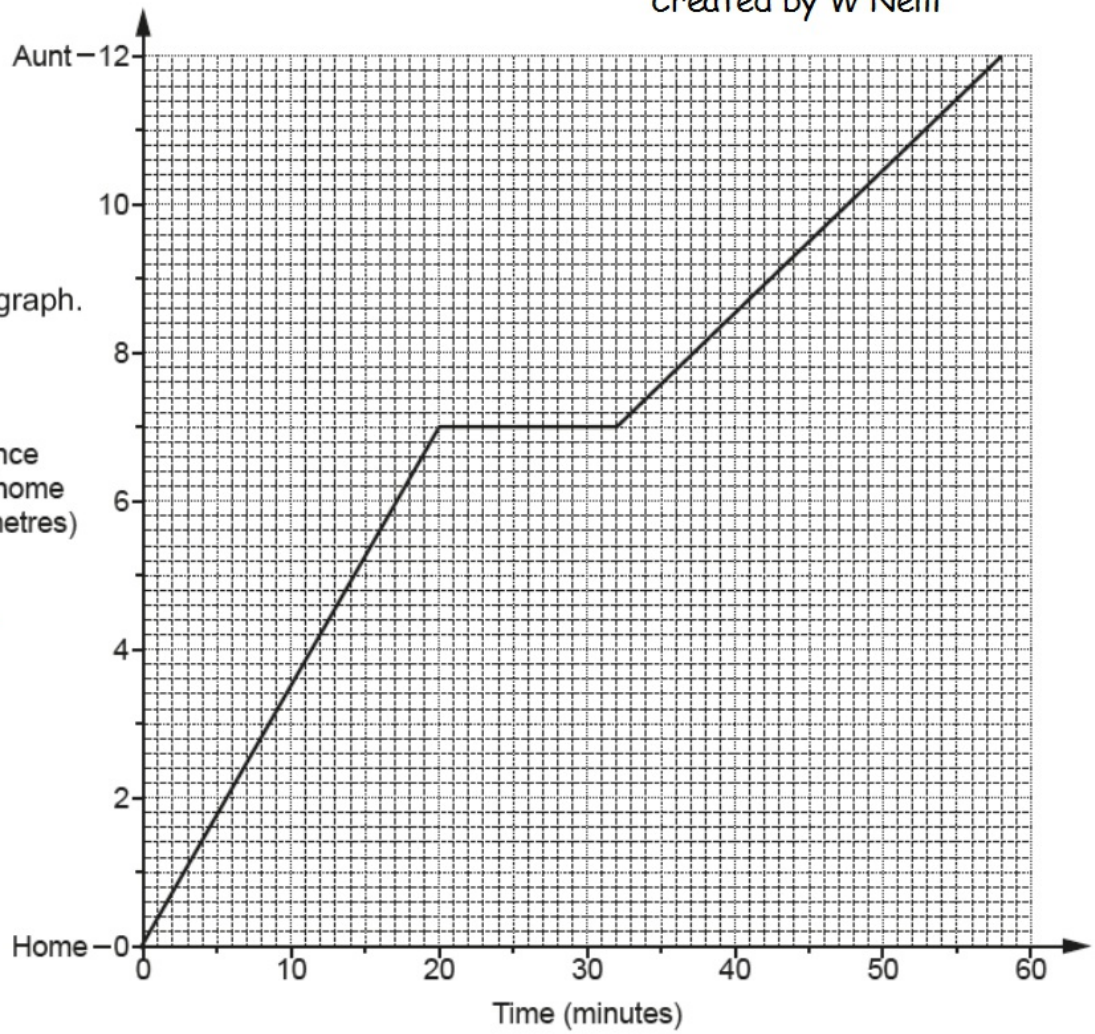
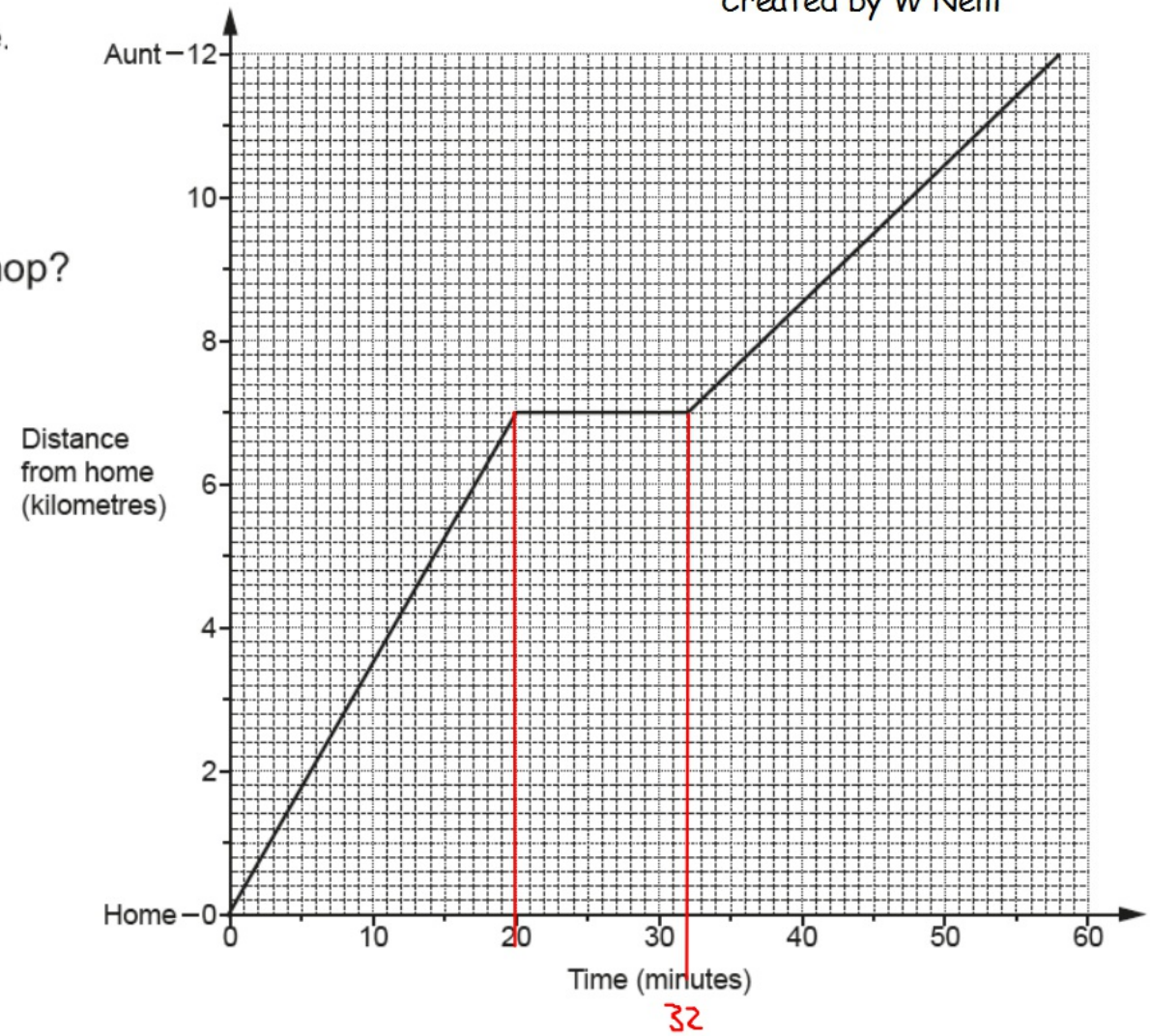


(a) State one assumption that Viraj made when he drew his graph.

cycled at a constant speed all the time as lines are straight

17 Viraj cycled from his home to visit his aunt.
He drew this graph to show his journey.
He stopped at a shop 7 km from his home.

Created by W Neill



(b) For how long did Viraj stop at the shop?

20m — 32min

12min

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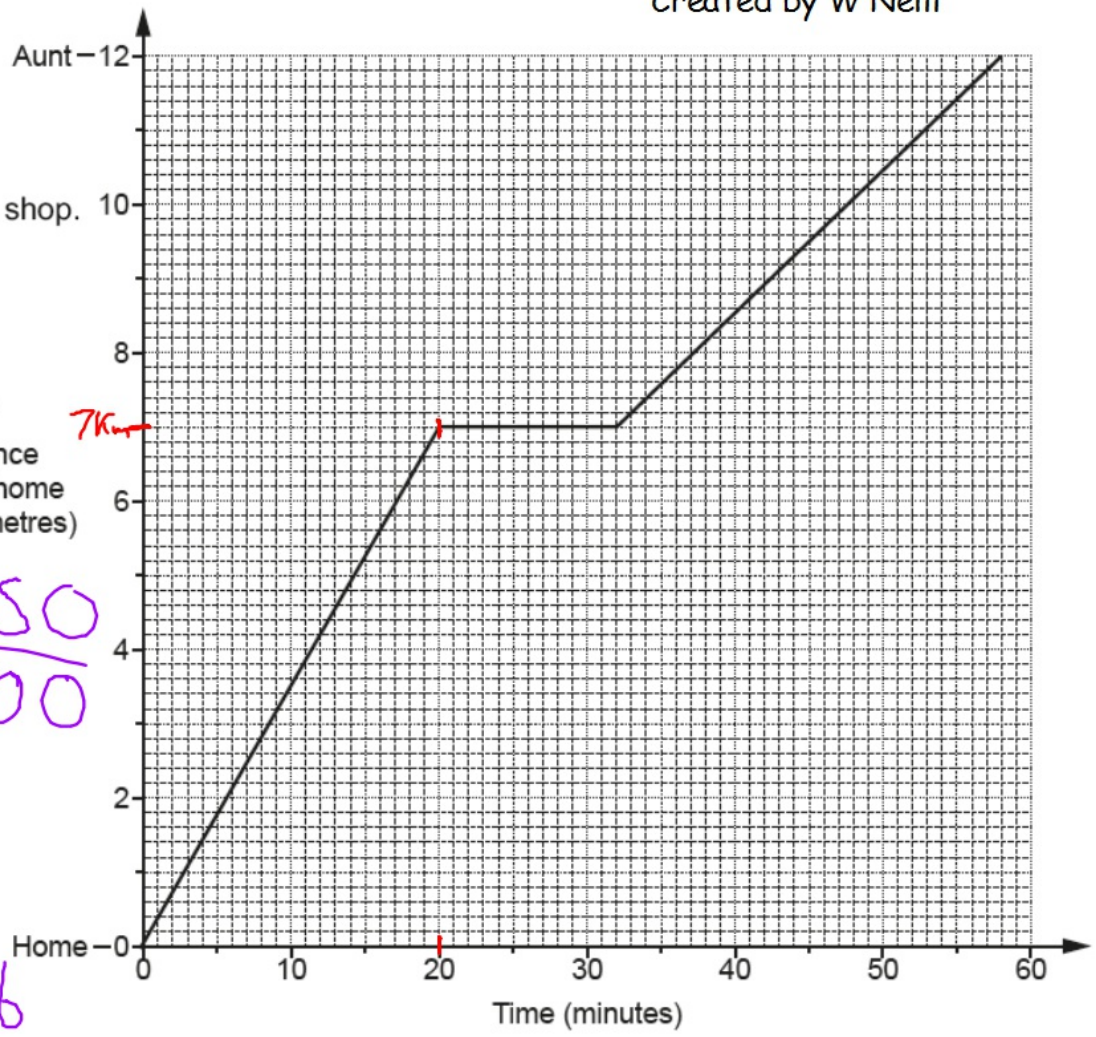


(c) Work out Viraj's average speed between his home and the shop.
Give your answer in metres per minute.

1hour

7Km = 20 min

x3

x3

21Km = 1hr (60 min)

350
6 | 2100

21Km = 1hr

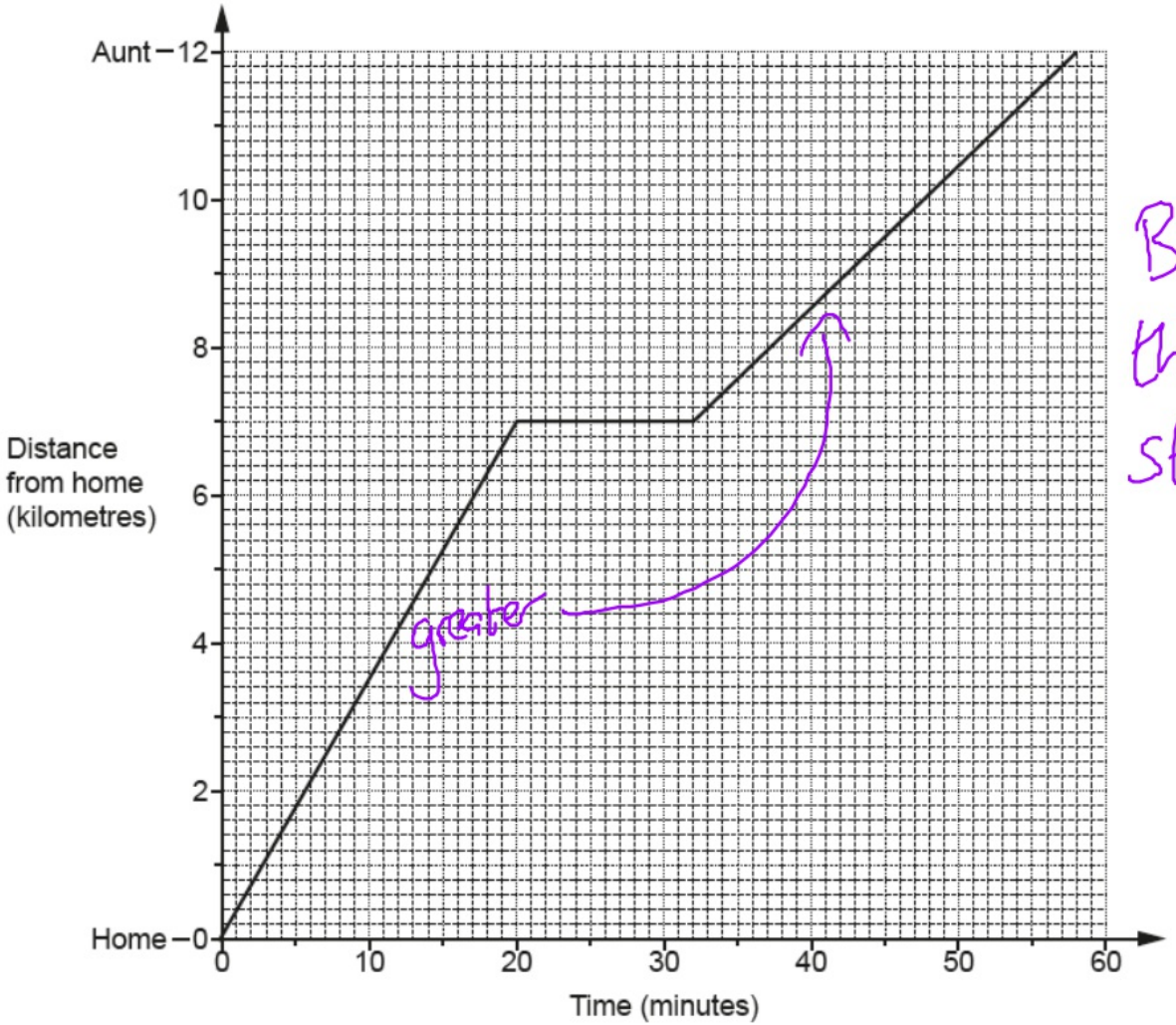
21000 = 60 min

2100 = 6 min

350m = 1 min ÷6

(d) How can you tell, without doing any calculations, that Viraj's average speed between his home and the shop is greater than his average speed between the shop and his aunt?

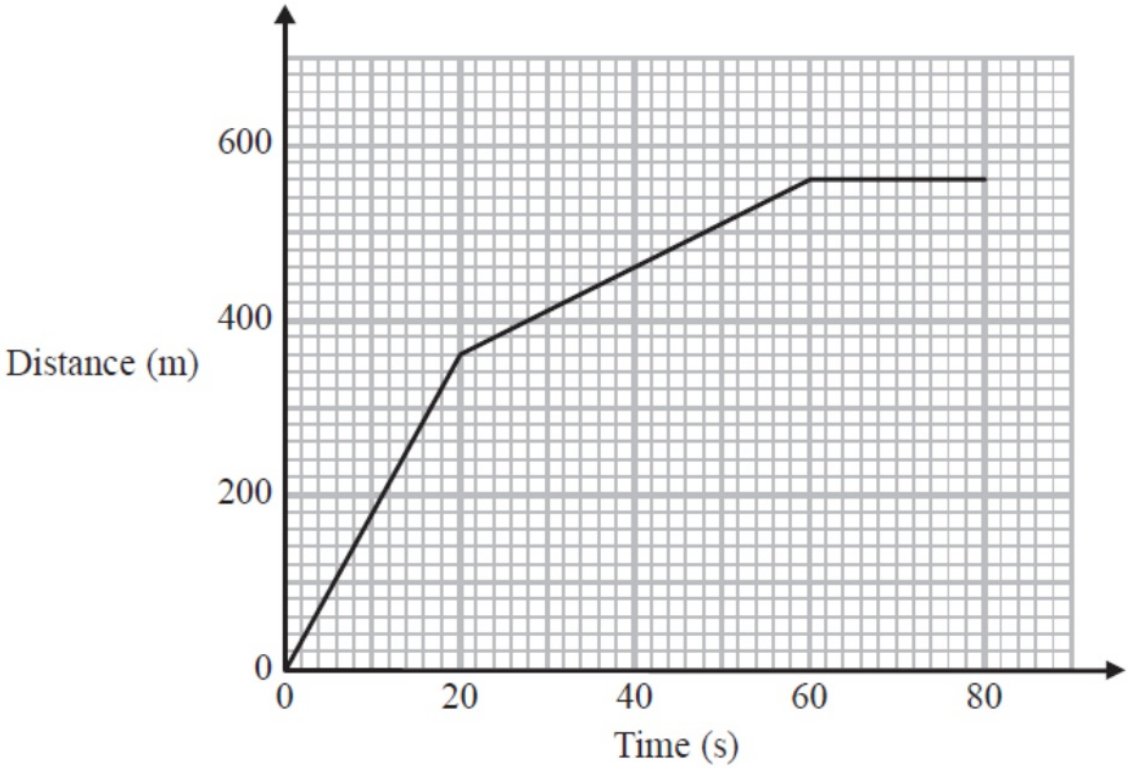
Created by W Neill



Between home and the shop the line is steeper.

Edexcel

10 Here is part of a distance-time graph for a car's journey.

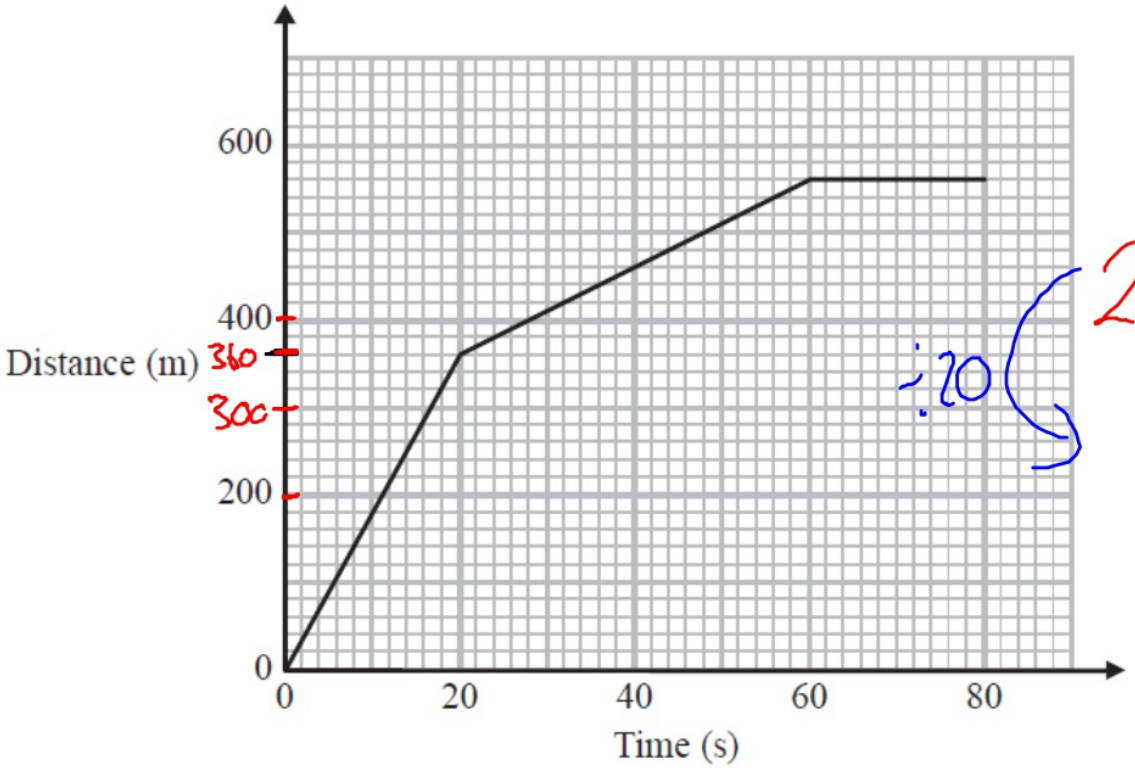


(a) Between which two times does the car travel at its greatest speed?
Give a reason for your answer.

(b) Work out this greatest speed.

Created by W Neill

10 Here is part of a distance-time graph for a car's journey.



20sec = 360m

÷20

1sec = 18m

18m/s ✓

(a) Between which two times does the car travel at its greatest speed?
Give a reason for your answer.

between 0 and 20 seconds, as this line is steeper

(b) Work out this greatest speed.

AQA

23

Video created by W Neill

Lily goes on a car journey.

For the first 30 minutes her average speed is 40 miles per hour.

She then stops for 15 minutes.

She then completes the journey at an average speed of 60 miles per hour.

The total journey time is 1 hour.

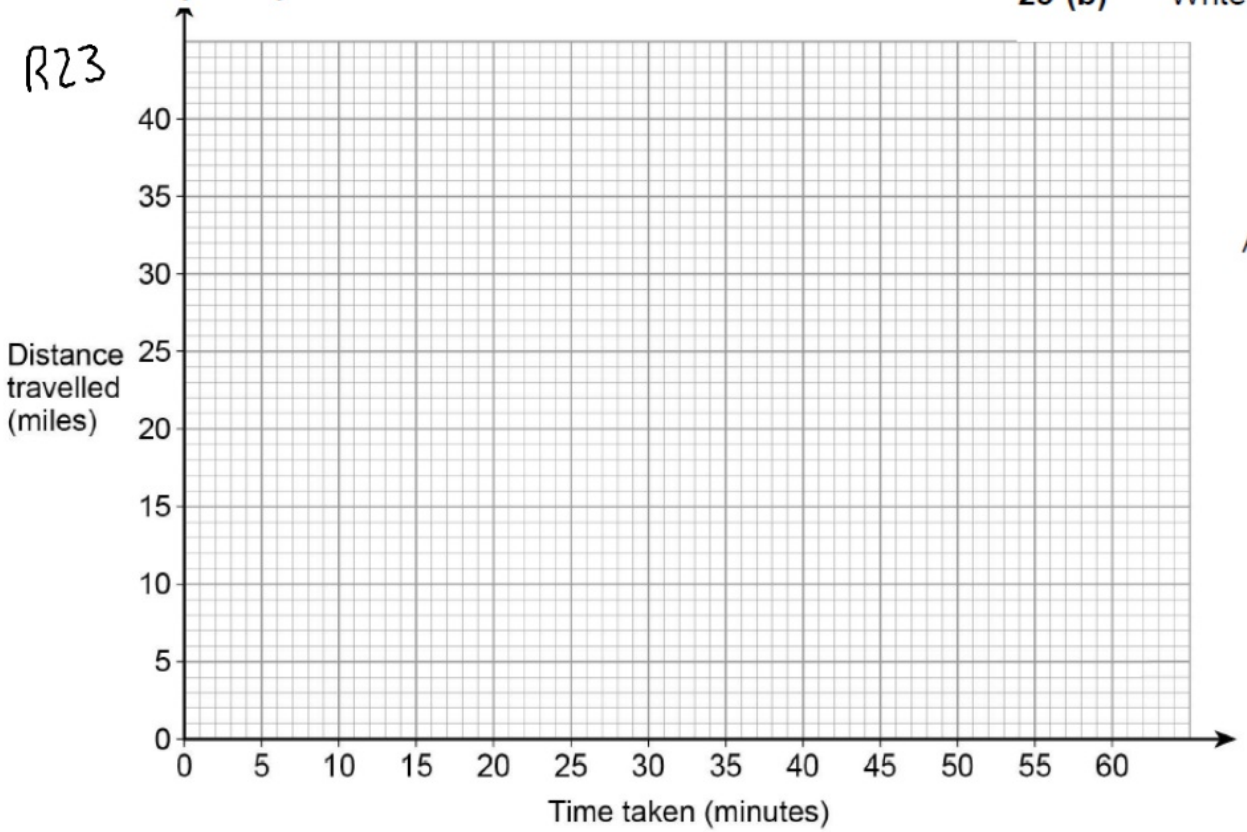
23 (a) Draw a distance-time graph for her journey.

[3 marks]

23 (b) Write down the average speed for the total journey.

[1 mark]

R23



Answer _____ mph

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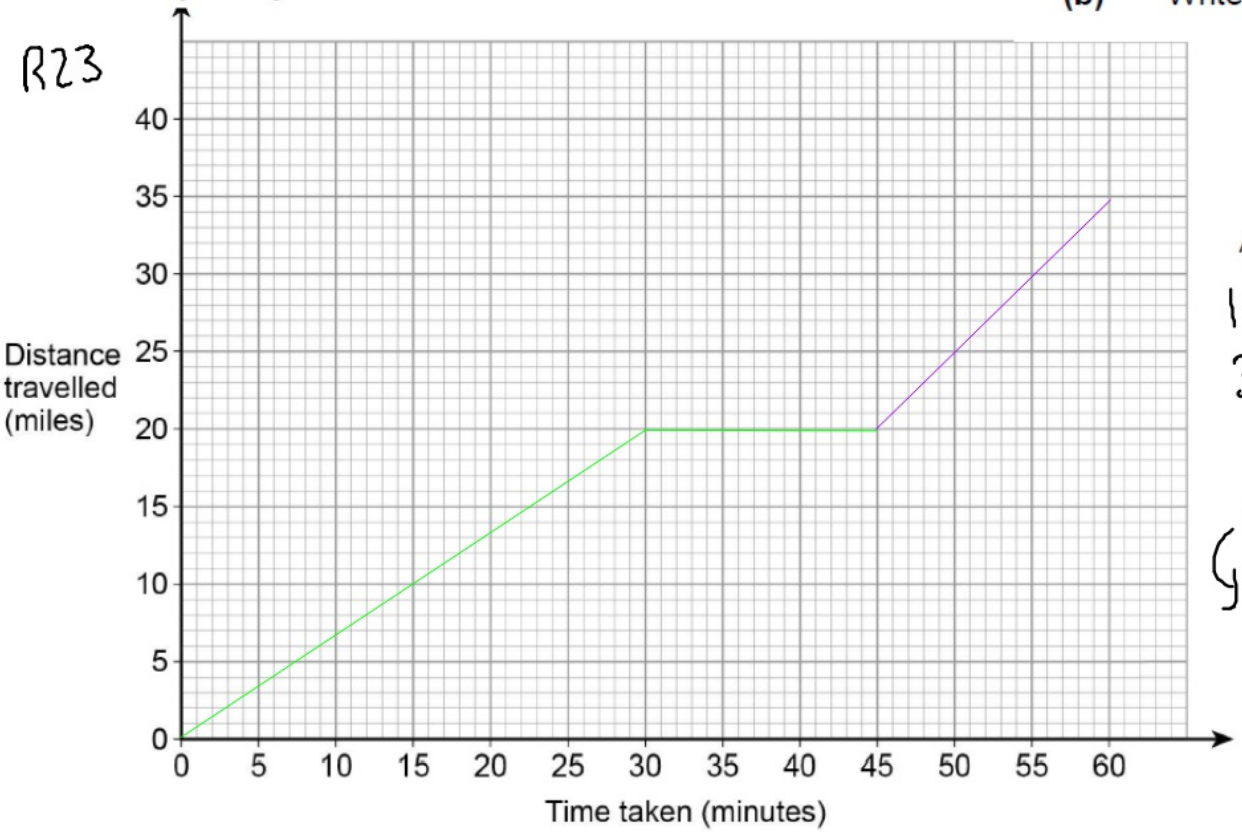


(a) Draw a distance-time graph for her journey.

[3 marks]

(b) Write down the average speed for the total journey.

35 miles = 60 min **[1 mark]**

Answer 35 mph

1 hr = 40 miles

30 min = 20 miles

60 miles = 1 hr

15 miles = 15 min) ÷4

Video created by W Neill

R23

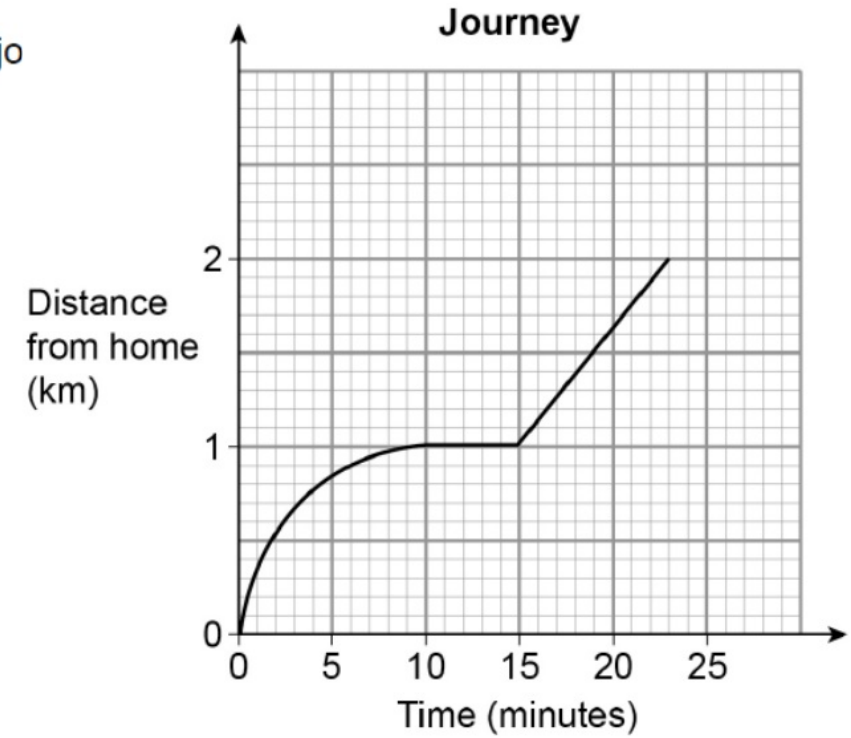
23 Anil's home is 1 km from a shop.

He walked from home to the shop at a constant speed in 10 minutes.

He stayed at the shop for 5 minutes.

He walked home at a constant speed in 8 minutes.

Anil drew this distance-time graph to represent his jo



Make **two** criticisms of his graph.

Criticism 1 _____

_____

Criticism 2 _____

_____

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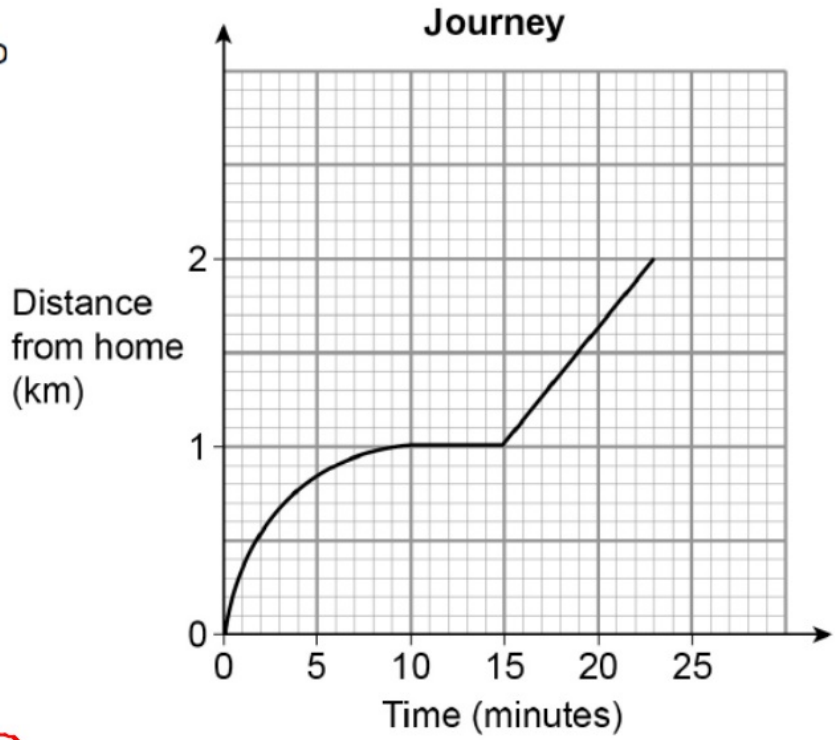


Make **two** criticisms of his graph.

Criticism 1 1st part of journey should be a straight line.

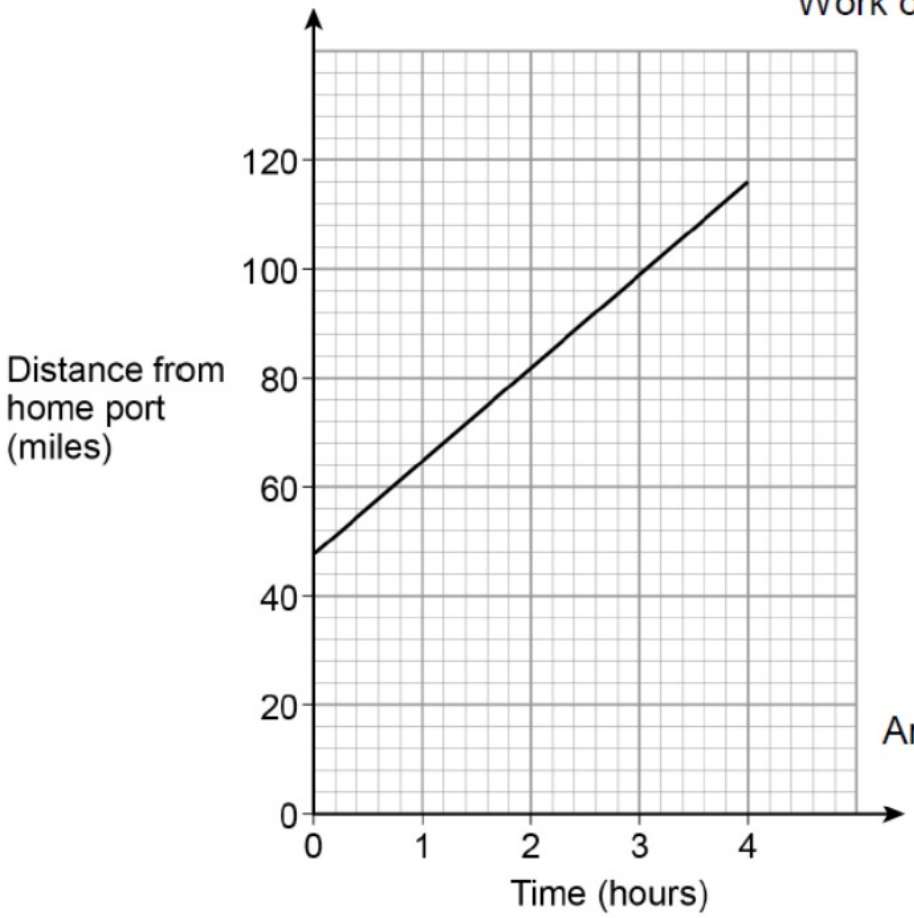
Criticism 2 last part should be coming back home eg. ---

Video created by W Neill

26 A ship is sailing in a straight line from its home port.

The distance-time graph shows 4 hours of the journey.

R23



Work out the speed of the ship during these 4 hours.

[3 marks]

Answer _____ mph

Video created by W Neill

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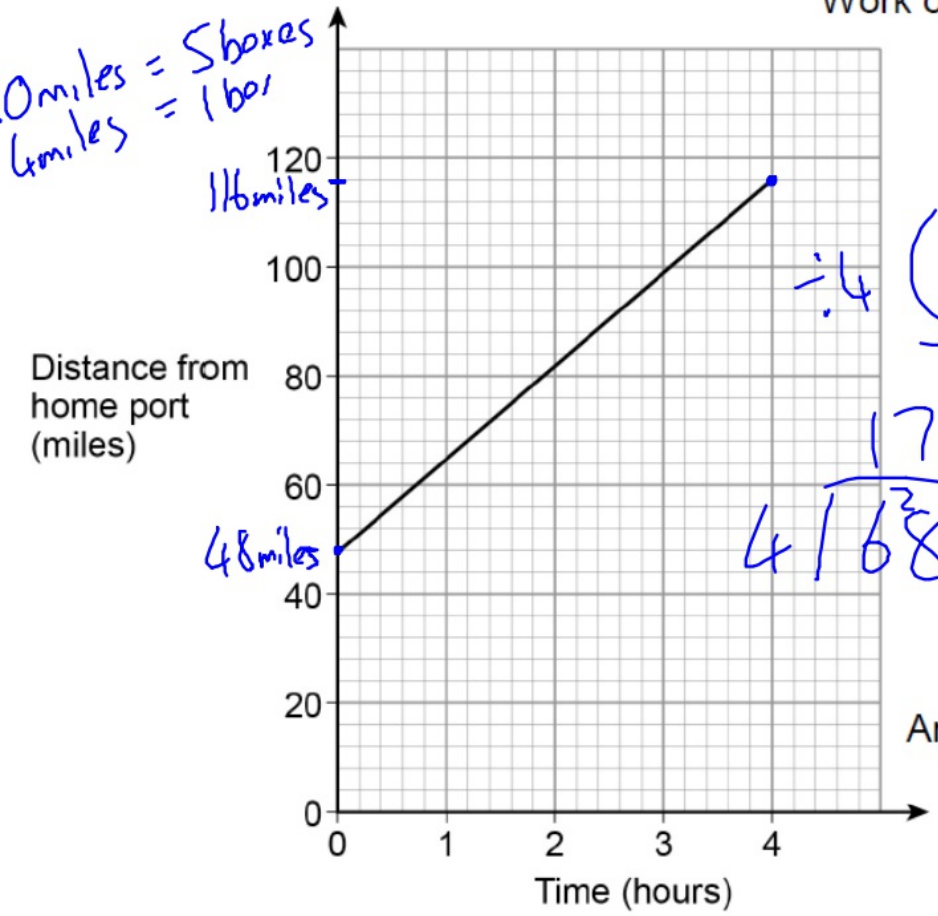
R23

Work out the speed of the ship during these 4 hours.

[3 marks]



Answer _____ mph