

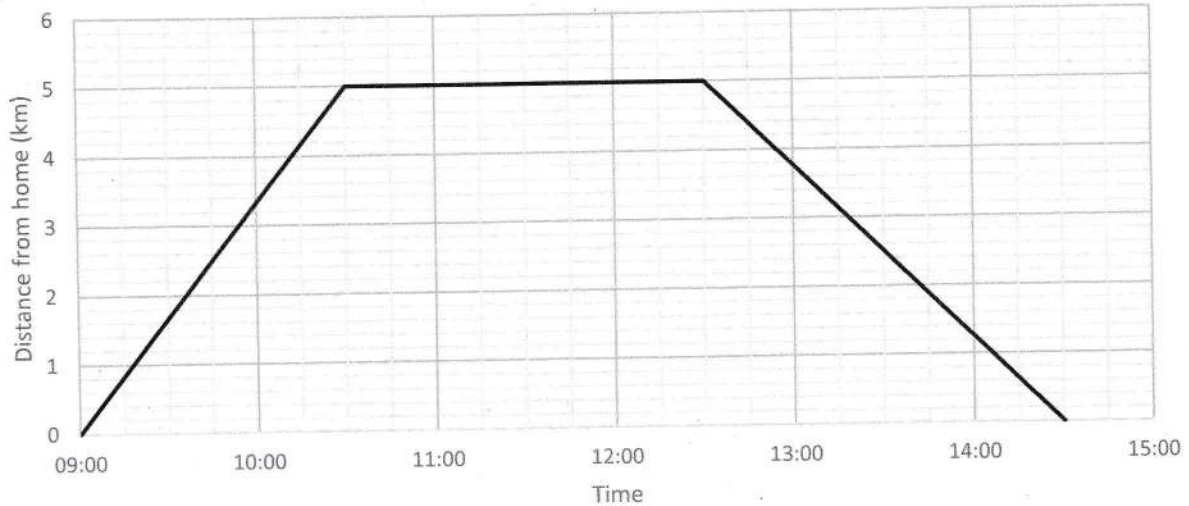
DISTANCE-TIME GRAPHS - PRACTICE QUESTIONS



metatutor

1.

Clive drove to an office for a meeting.
After the meeting, he drove straight back home.
The distance-time graph below shows his journey.



(a) How many kilometres away is the office from Clive's home?

5 kilometres

(b) How long was the meeting?

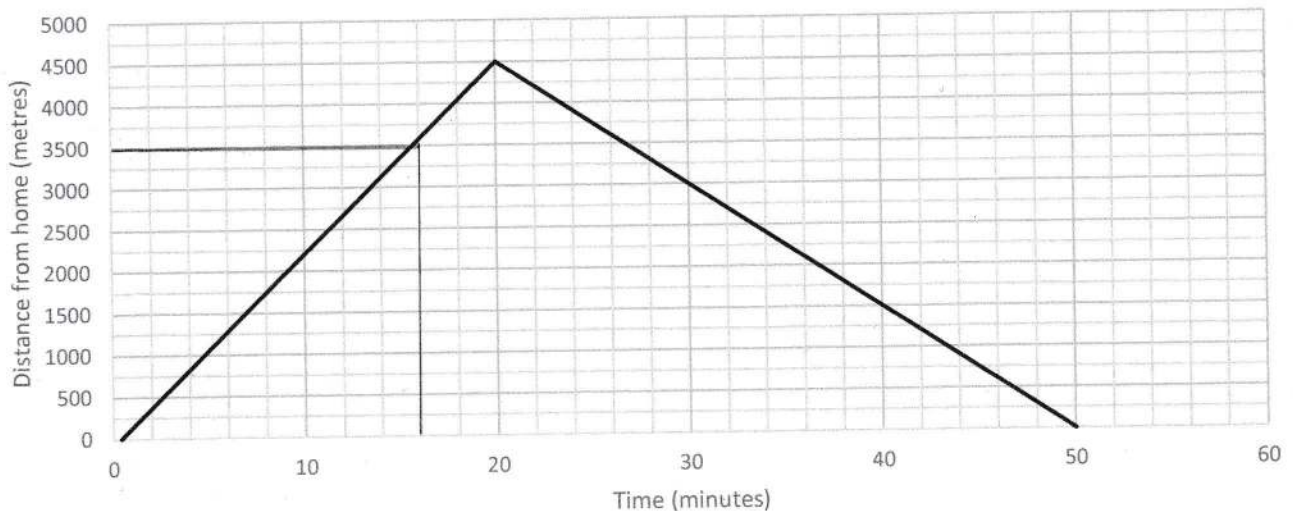
2 hours

(c) How long did it take Clive to drive to the meeting?

1 hour 30 minutes

2.

Danny went for a run.
The distance-time graph below shows his journey.



How many metres had Danny run after 16 minutes?

3,500 metres

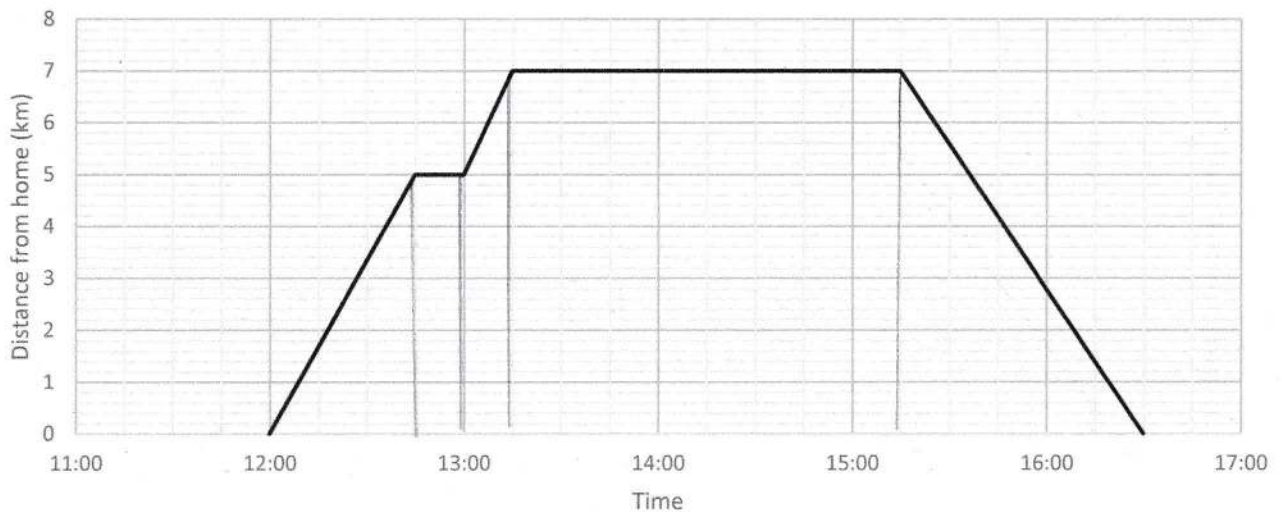
3.

Erica cycled to her friend's house.

She stayed at her friend's house to watch a movie and then started cycling back.

On the way to her friend's house, she stopped at the shops to buy some snacks.

The distance-time graph below shows her journey.



(a) At what time did Erica arrive at her friend's house?

13:15

(b) How long did she stop at the shops for?

15 minutes

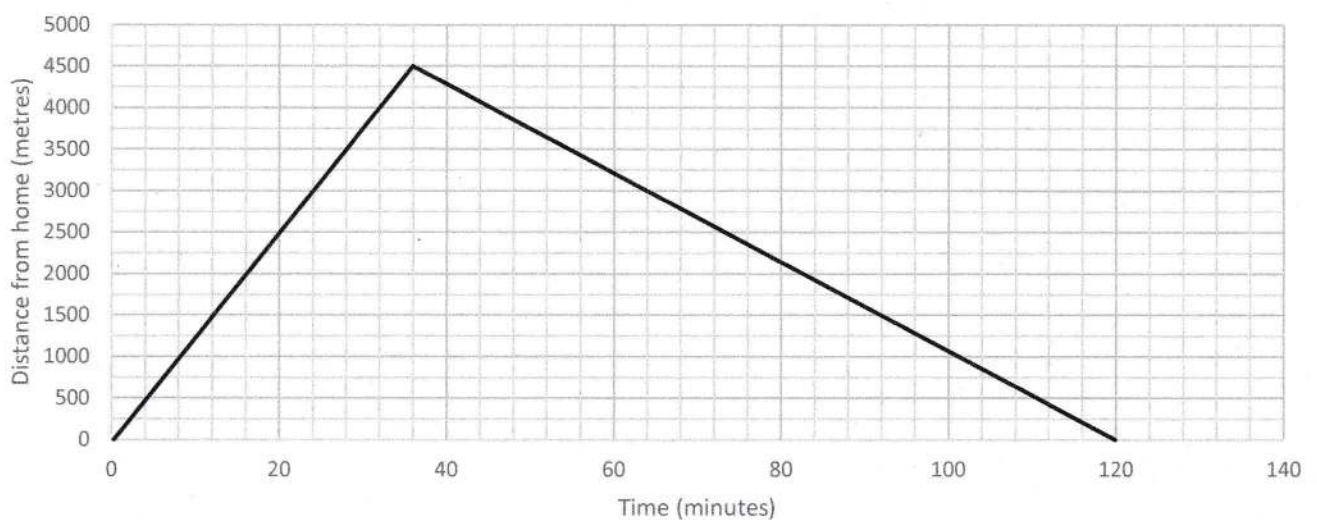
(c) How long did Erica spend cycling in total?

45 mins + 15 mins + 1 hr 15 = 2 hours 15 minutes

4.

Freddie went for a bike ride.

The distance-time graph below shows his journey.

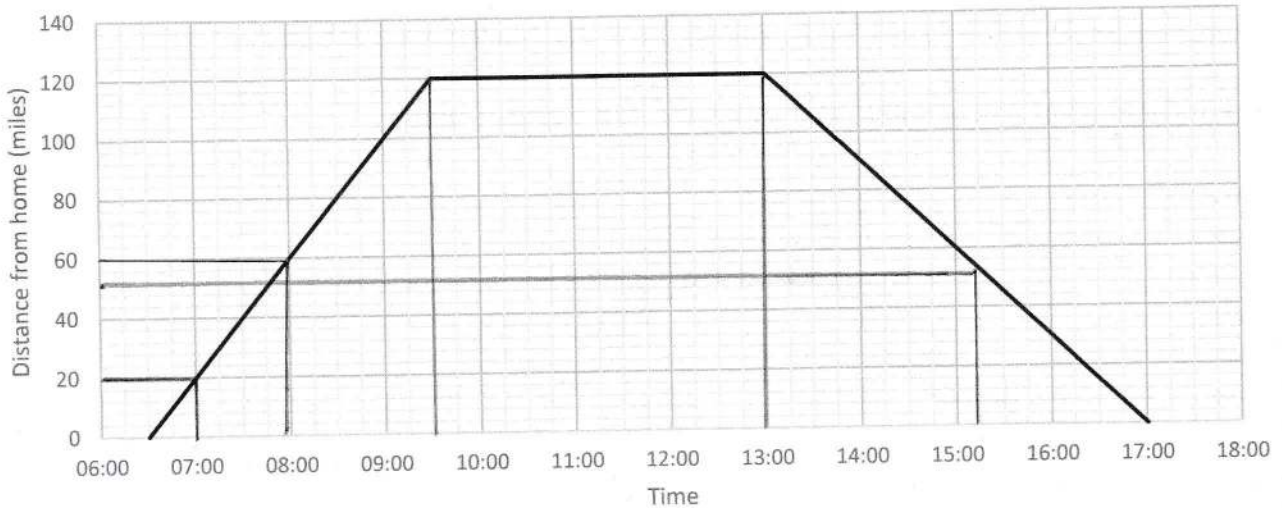


Find Freddie's average speed for the bike ride, in kilometres per hour.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{9,000\text{m}}{1\ 20\text{mins}} = \frac{9\text{km}}{2\text{hr}} = \underline{4.5\text{kph}}$$

5.

Grace caught the train from Bristol to London for a meeting. After the meeting, she travelled straight back. The distance-time graph below shows her journey.



(a) How long was the meeting?

3 hours 30 minutes

(b) What time did Grace leave the meeting?

13:00

(c) How far from home was Grace at 15:15?

52 miles

(d) How many miles did Grace travel between 07:00 and 08:30?

40 miles

(e) Work out Grace's average speed on the journey from Bristol to London.

$$\text{Time} = 9:30 - 6:30$$

$$= 3 \text{ hours}$$

$$\text{Distance} = 120 \text{ miles}$$

$$\text{Speed} = \frac{120}{3} = \underline{40 \text{ miles per hour}}$$

(f) Work out Grace's average speed on the journey from London to Bristol.

$$\text{Time} = 17:00 - 13:00$$

$$= 4 \text{ hours}$$

$$\text{Distance} = 120 \text{ miles}$$

$$\text{Speed} = \frac{120}{4} = \underline{30 \text{ miles per hour}}$$

6.

Hayley went for a run.

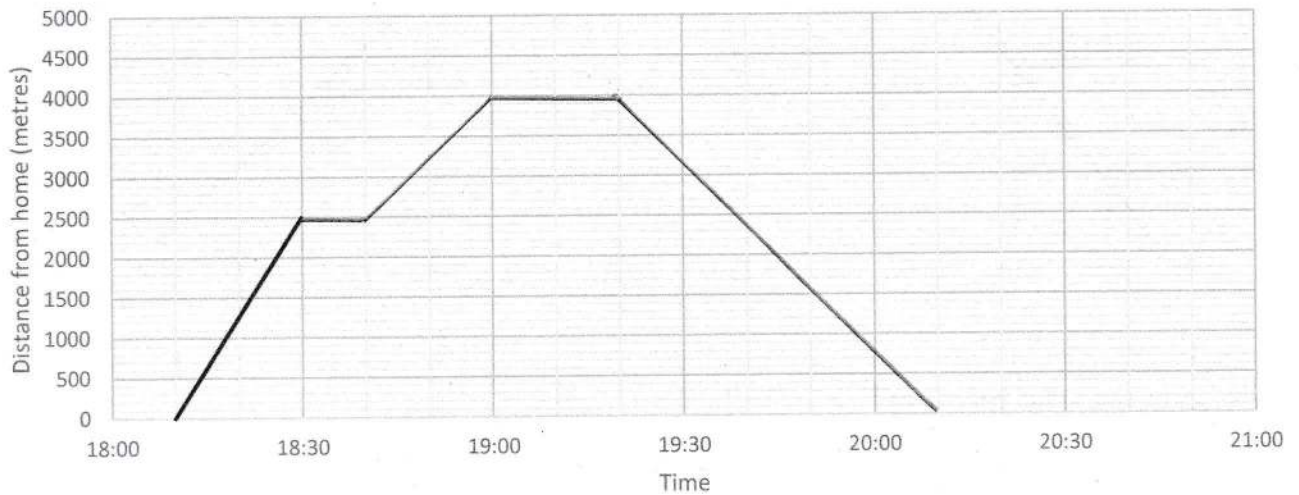
She left home at 18:10 and ran 2,500 metres before stopping for a rest at 18:30.

Then she started running again at 18:40 and ran a further 1,500 metres from home.

She stopped again for a 20 minute rest at 19:00.

She then ran back home at a steady speed, arriving back home at 20:10.

Use the information to complete the distance-time graph below.



7.

Ian cycled to work, which is 8 miles from his home.

He left home at 07:40 and arrived at 08:10.

He left work at 15:30.

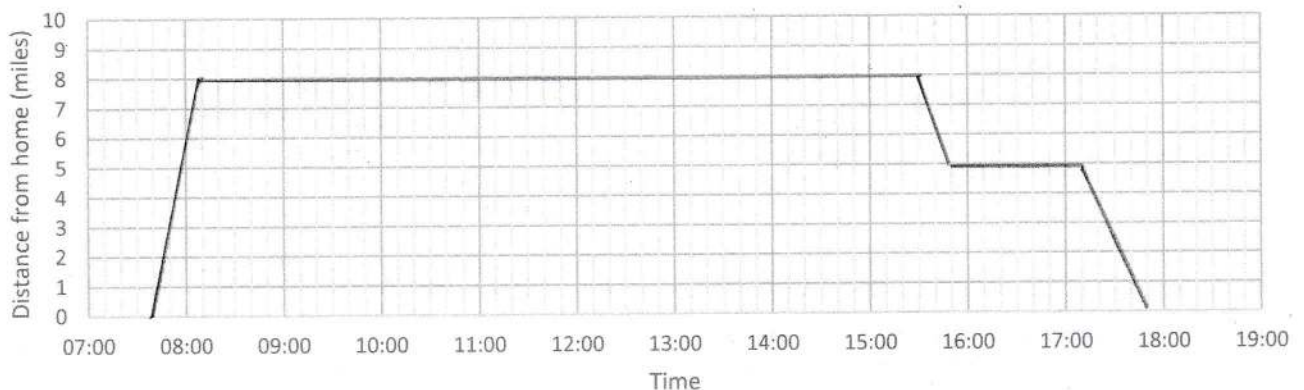
On the way back home, he stopped at a café, 5 miles from his home, to meet a friend.

He arrived at the café at 15:50 and stayed for 1 hour and 20 minutes.

He then cycled straight back home, arriving at 17:50.

Assume that Ian cycled at a steady speed at all times.

(a) Use the information to plot a distance-time graph.



(b) Work out Ian's average speed, in miles per hour, on his journey to work in the morning.

$$\begin{aligned} \text{Time} &= 8:10 - 7:40 \\ &= 30 \text{ minutes} \\ &= \frac{1}{2} \text{ hour} \end{aligned}$$

$$\text{Distance} = 8 \text{ miles}$$

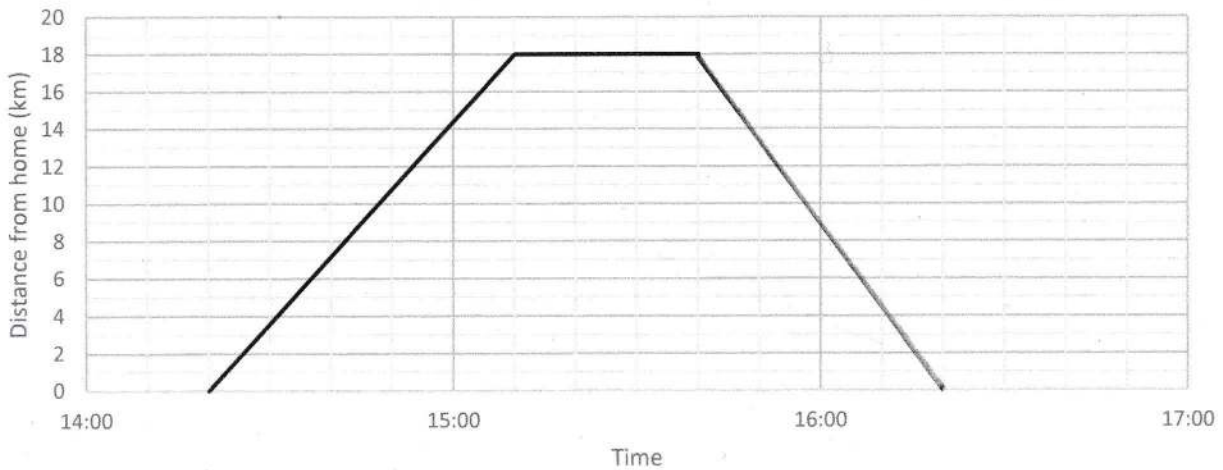
$$\text{Speed} = 8 \div \frac{1}{2} = \underline{\underline{16 \text{ miles per hour}}}$$

8.

Jayne drove to pick her daughter up from school.

She waited for her daughter to meet her, and then drove straight back home at a steady speed of 27 kilometres per hour.

The distance-time graph below shows part of Jayne's journey.



Use the information to complete the distance-time graph.

$$\text{Speed} = 27 \text{ kph}$$

$$\text{Distance} = 18 \text{ km}$$

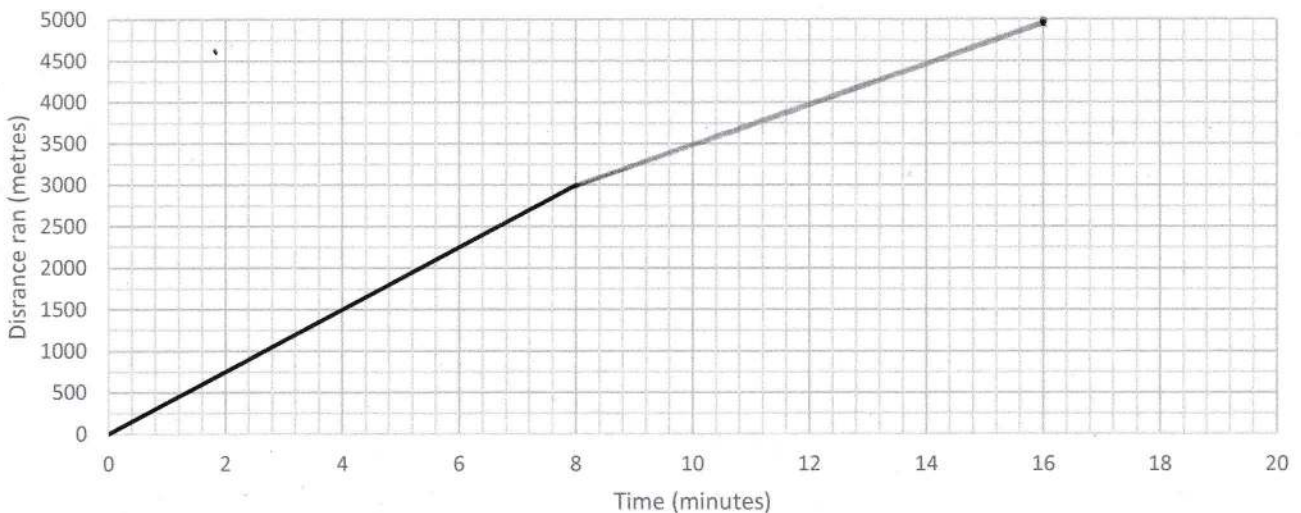
$$\text{Time} = \frac{18}{27} = \frac{2}{3} \text{ hour} = \underline{40 \text{ minutes}}$$

9.

An athlete ran 5,000 metres.

He ran the first 3,000 metres in 8 minutes.

His speed in the final 2,000 metres was 250 metres per minute.



Assuming that he ran at a steady speed for the final 2,000 metres, use the information to complete the distance-time graph.

$$\text{Speed} = 250 \text{ mpm}$$

$$\text{Distance} = 2,000 \text{ m}$$

$$\text{Time} = \frac{2,000}{250} = 8 \text{ minutes}$$

10.

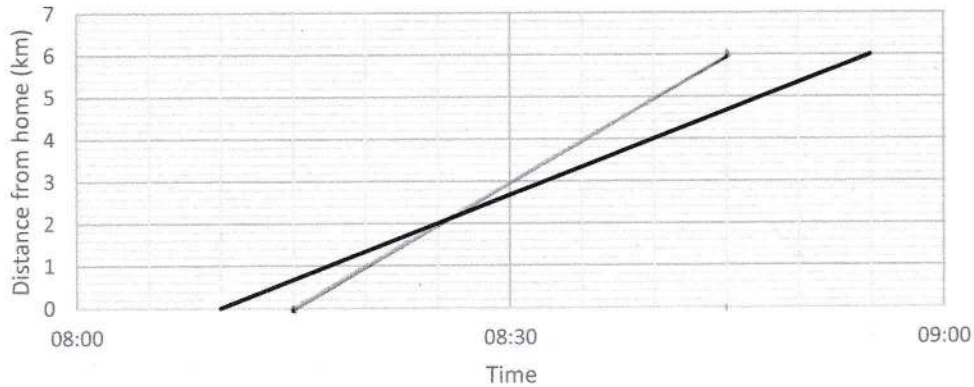
Kristina cycled to school.

Her brother, Lucas, also cycled to school following the same route.

Kristina and Lucas live 6 kilometres from their school.

Lucas left at 08:15 and cycled at an average speed of 12 kilometres per hour.

Kristina's journey is shown on the distance-time graph below.



(a) Work out Kristina's average speed, in kilometres per hour.

$$\text{Time} = 8:55 - 8:10 = 45 \text{ minutes} = \frac{3}{4} \text{ hours} \quad \text{Speed} = \frac{6}{\frac{3}{4}} = \underline{8 \text{ kph}}$$
$$\text{Distance} = 6 \text{ km}$$

(b) Use the information to plot Lucas's journey on the same distance-time graph.

$$\text{Speed} = 12 \text{ kph} \quad \text{Time} = \frac{6}{12} = \frac{1}{2} \text{ hour} = 30 \text{ minutes}$$
$$\text{Distance} = 6 \text{ km}$$

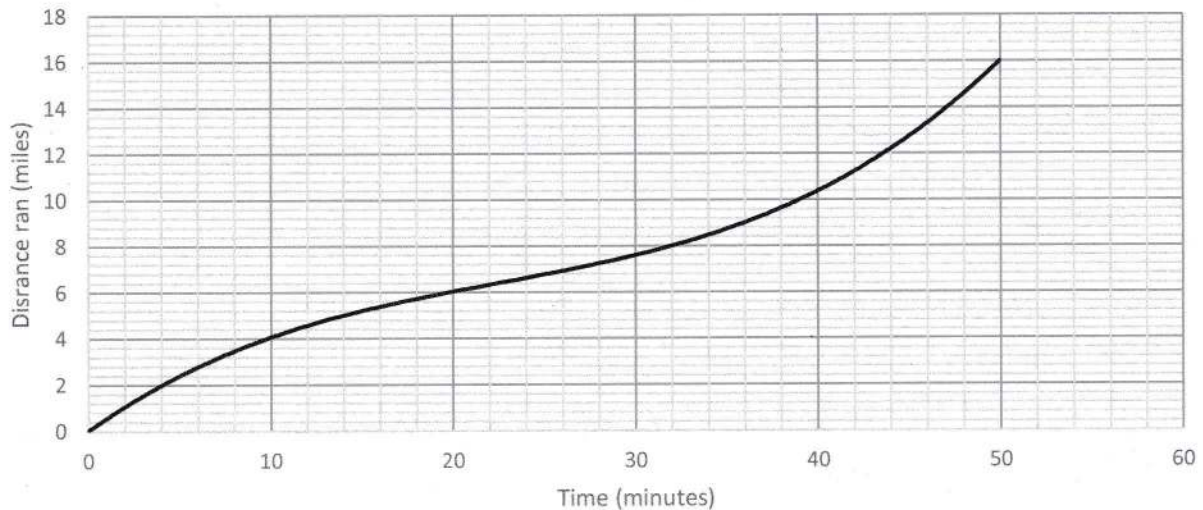
(c) At what time did Lucas cycle past Kristina?

8:25

11.

Martina went for a run.

The distance-time graph below shows her journey.



Work out Martina's average speed, in miles per hour.

$$\text{Distance} = 16 \text{ miles}$$
$$\text{Time} = 50 \text{ minutes} = \frac{5}{6} \text{ hours} \quad \text{Speed} = 16 \div \frac{5}{6} = \underline{19.2 \text{ mph}}$$