

Distance Time Graphs

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You *can* use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

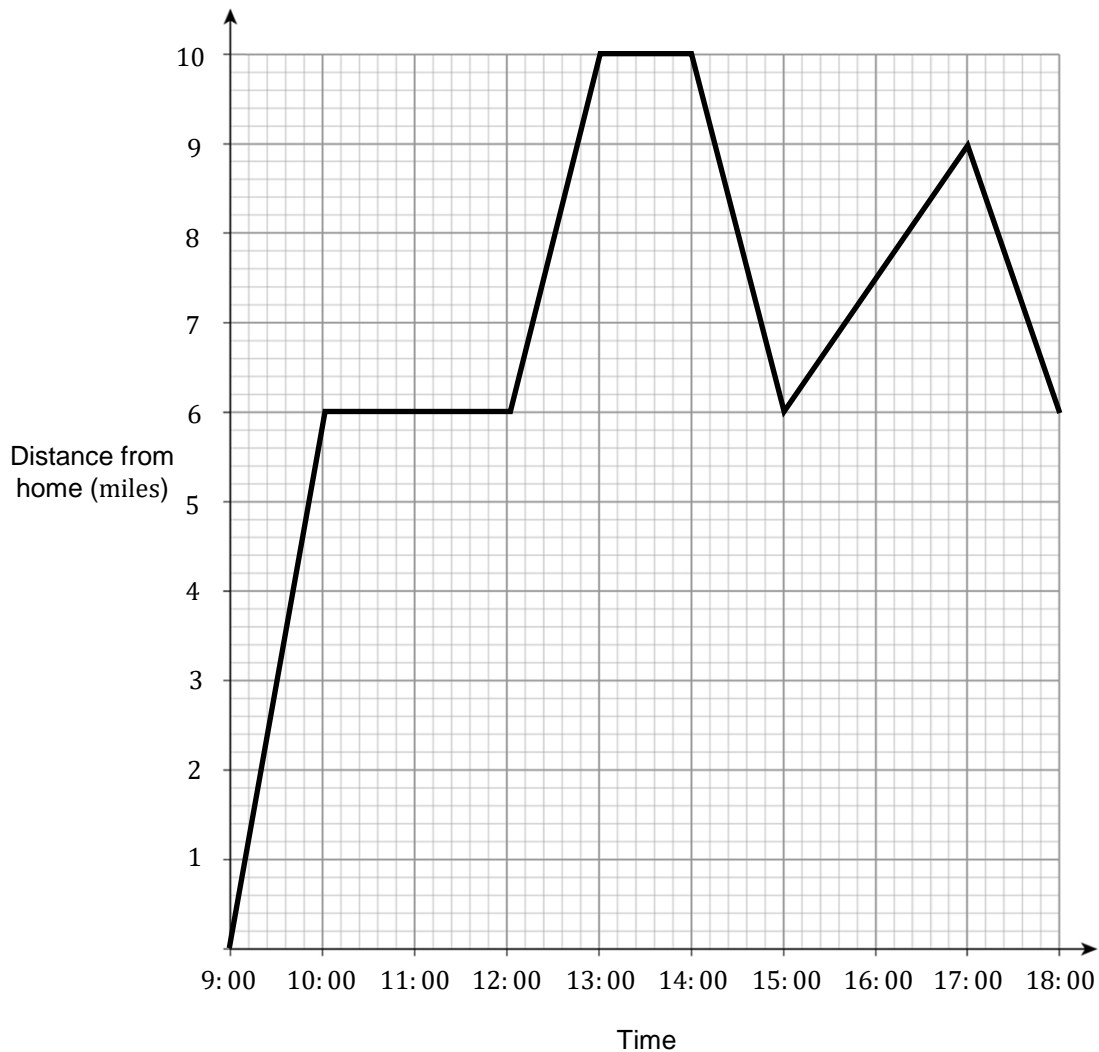
Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

1 Here is a distance-time graph for Charlie's journey over the course of a day.



Describe each stage of Charlie's journey as represented by the graph above, making sure you mention the following:

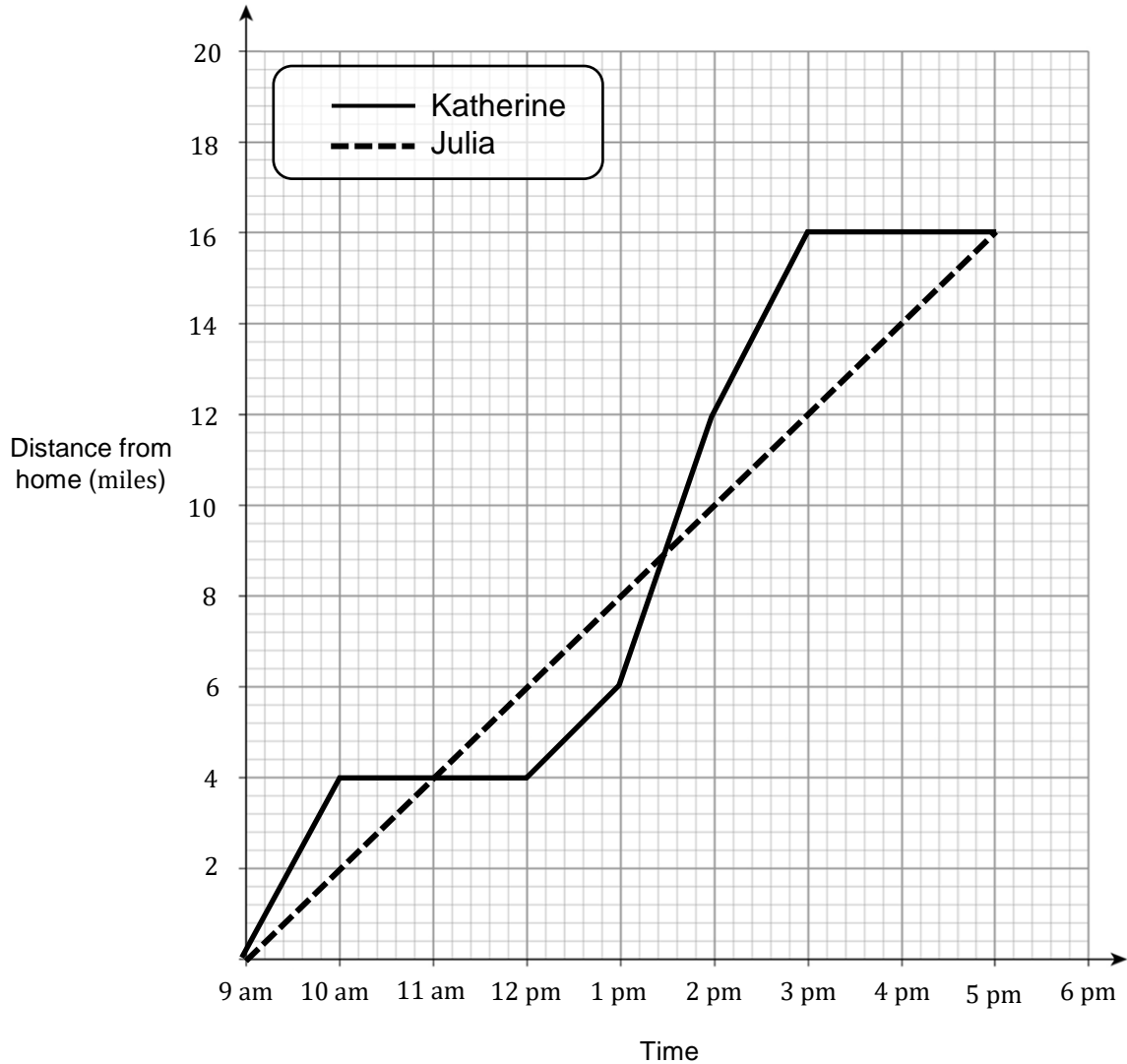
- Distance travelled in the first part of the journey
- Speed travelled at after the first stop
- The direction of travel at 14:00

[4 marks]

Turn over for next question

Turn over ►

- 2** Katherine and Julia are both competing in a long-distance race.
The distance they both travelled from home is displayed in the chart below.



- 2(a)** Who covered the longest distance on their race?

[1 mark]

Answer _____

Question continues on next page

Turn over ►

2(b) What was Katherine's highest speed over the course of the journey?

[1 mark]

Answer _____

2(c) How much time did Julia spend ahead of Katherine in the race?

[1 mark]

Answer _____



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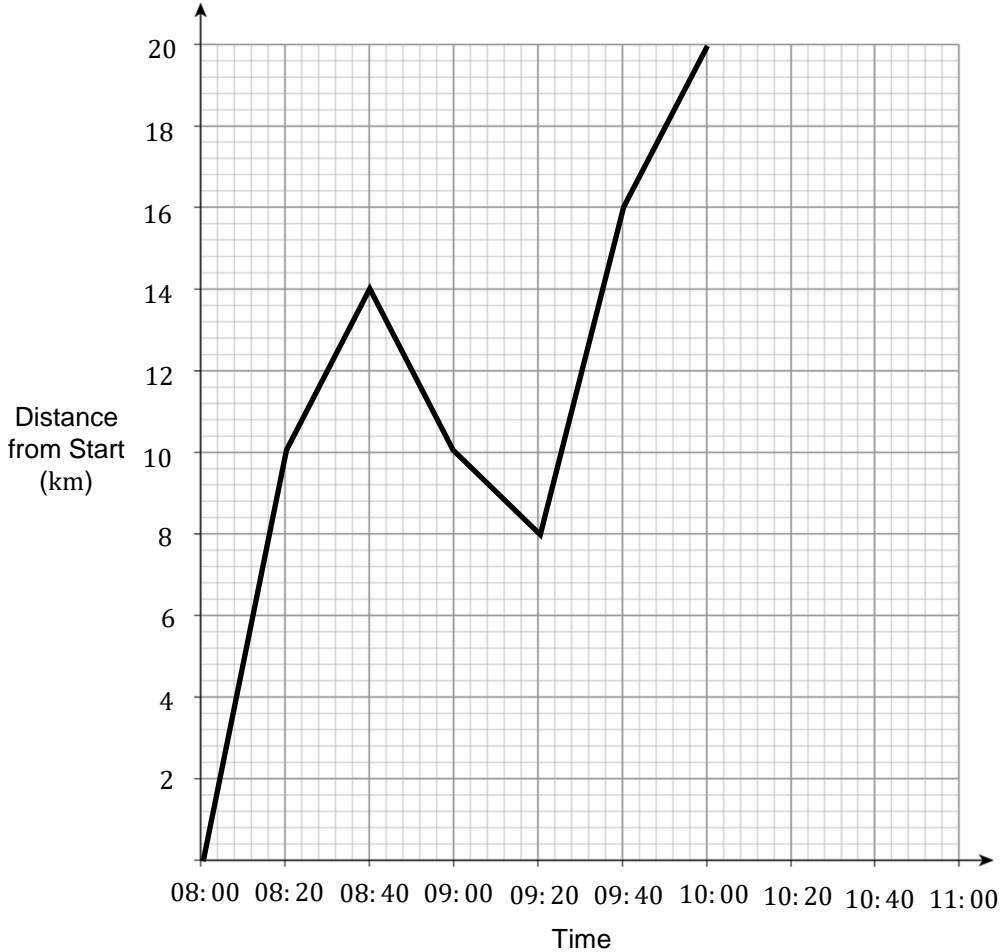
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3 On a morning bike ride Jane records her distance from her usual start point in 20 – minute intervals.

This can be seen on the graph below.



3(a) How far did she travel in the first 2 hours of her journey?

[1 mark]

Answer _____

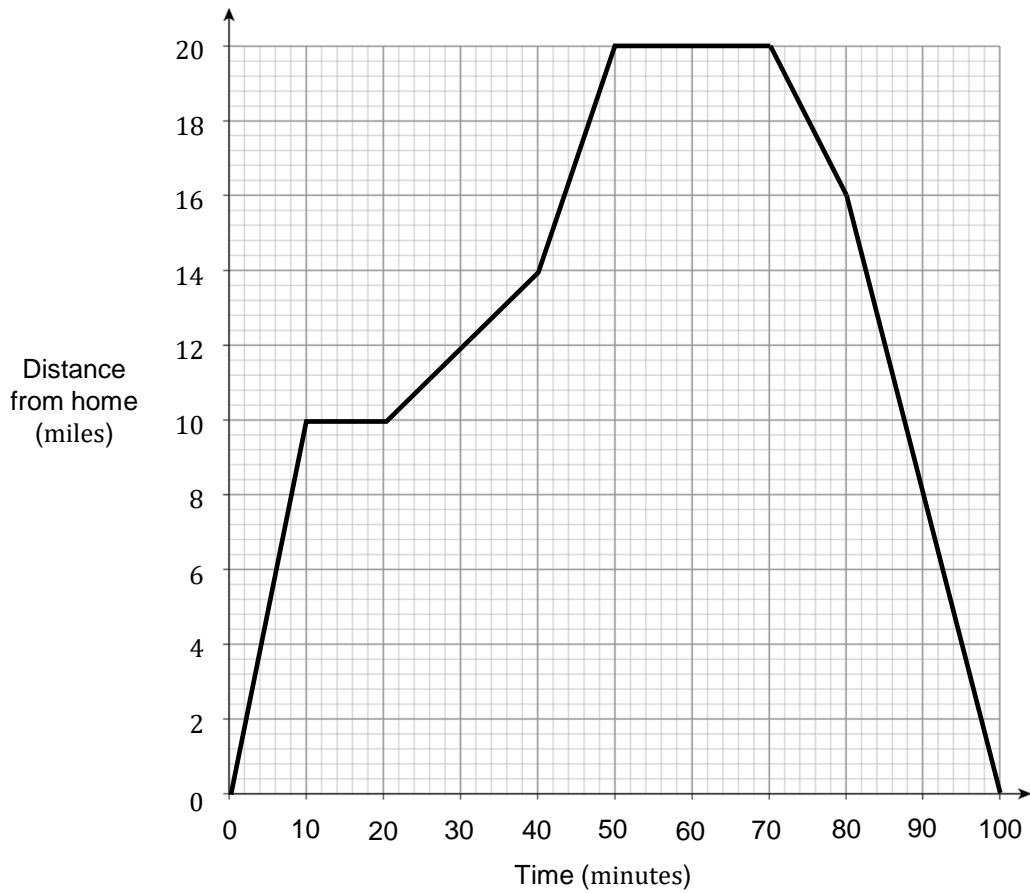
3(b) Jane travels back to the start at a constant speed of 30 km/h
Use this information to complete the journey on the axes above.

[2 marks]

Turn over for next question

Turn over ►

- 4 The diagram below shows a journey starting from home.



Describe the journey. Split the journey up into two steps; outward and return.
Make note of:

- The highest speed achieved
- Any rest times
- The total distance covered

[5 marks]

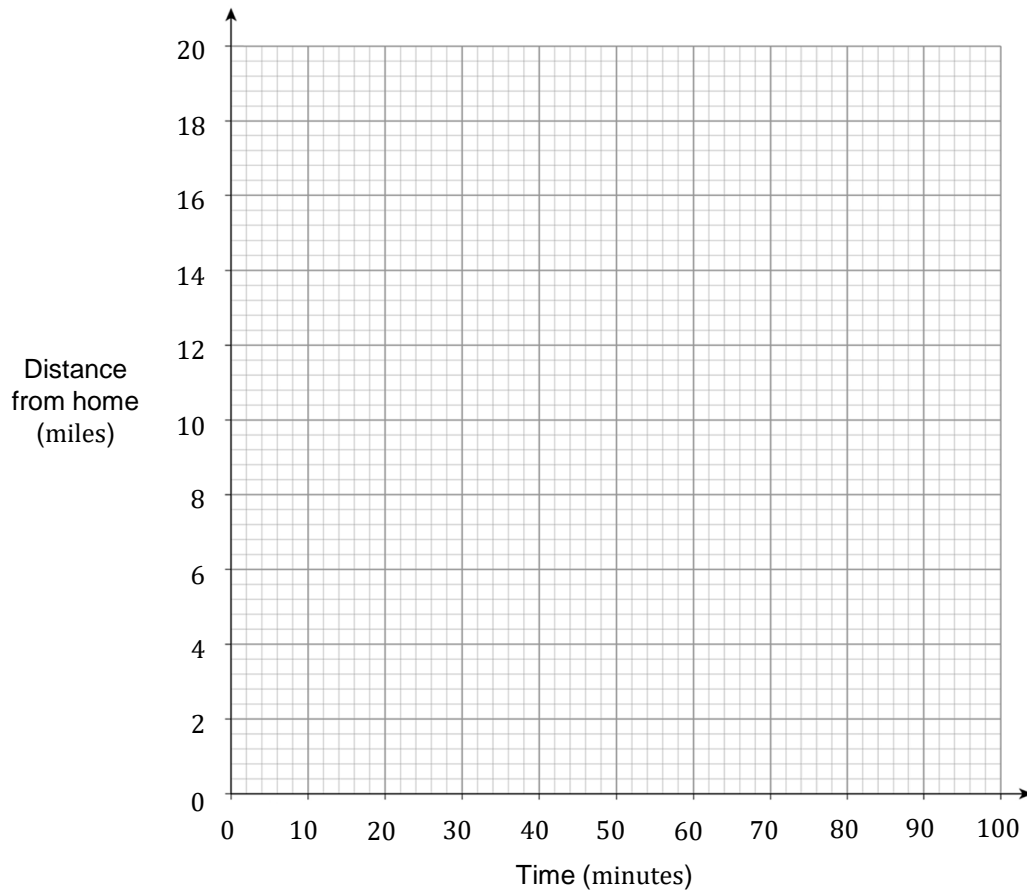
Turn over for next question

Turn over ►

5 On the diagram below, draw a distance-time graph to represent the following journey.

- Raine starts 4 miles from home and jogs away from home at 6 mph for 20 minutes.
- She then runs away from home for 2 miles, taking 10 minutes.
- She rests for 10 minutes
- She then takes the bus to the shops, 8 miles further away from home at an average speed of 24 mph.
- After shopping for 10 minutes, she returns home at an average speed of 32 mph.

[5 marks]



Turn over for next question

Turn over ►

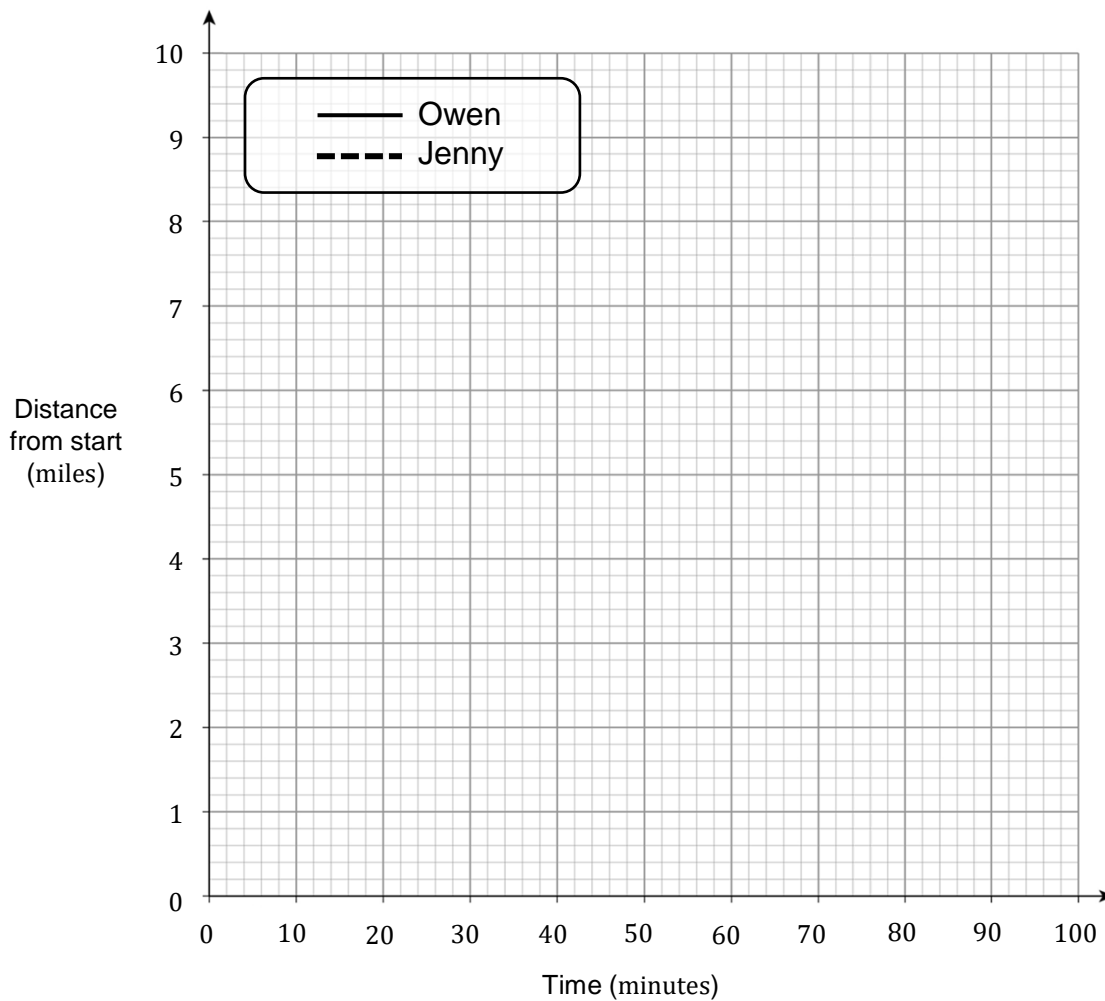
6 Jenny and Owen start a 9 mile race.

- They both start the race at the same time
- Owen runs at 6 mph for 20 minutes, then rests for 10 minutes, then runs a further 6 miles in 40 minutes.
- He then runs to the finish, taking a total of 80 minutes for the entire race.
- Jenny runs at 12 mph for 30 minutes, but then rests for 20 minutes after that.
- She then runs the remaining distance in 20 minutes.

6(a) On the axes below, draw a distance time graph to show both Jenny and Owen 's 9 mile race.

Ensure you label each graph correctly.

[4 marks]



Question continues on the next page

Turn over ►

6(b) Do Jenny and Owen ever meet at any point during the race?

[1 mark]

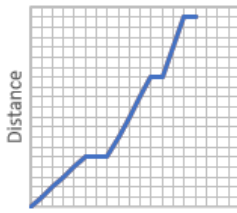
Answer _____

6(c) When Jenny completes the race, approximately how far does Owen have left to run?

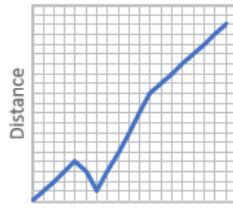
[1 mark]

Answer _____

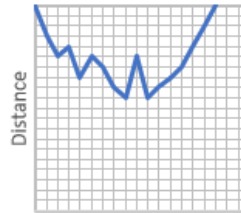
7 Eight distance time graphs A-H are shown below.



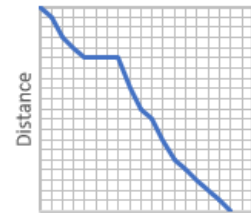
A



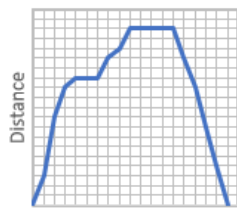
B



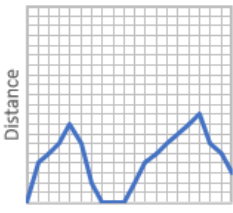
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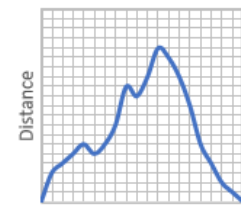
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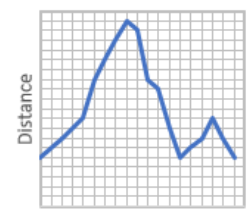
E



F



G



H

Add these graphs into the table below.

If a graph satisfies multiple areas of the table, write it in both.

Some have been done for you .

[5 marks]

	Rests	Does not rest
Travels in only one direction		
Travels in multiple directions	E F	
Starts and ends at the same place		

End of questions

END