3. Distance-Time Graphs

School trip to London

> The GCSE history class have just come back from their annual London trip and below are details from their itinerary. Practise using time-distance graphs to understand more about their journey around the capital.
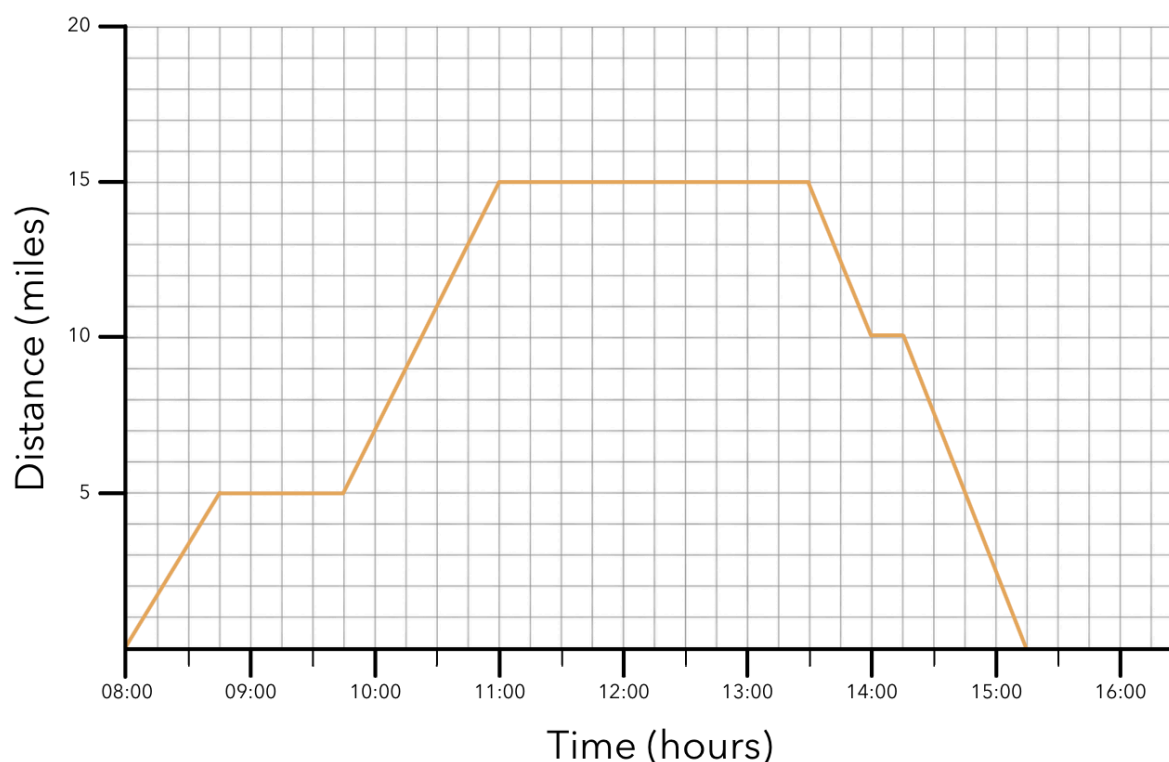
Day one:

The students left the hostel at 08:00 to catch the bus to visit the Natural History Museum.

They had to change buses on their journey, so they decided to stop off for breakfast at a café before catching the second bus.

After breakfast they carried on their journey to the Natural History Museum and attended a guided tour which lasted two and a half hours.

The group then headed back to the hostel, and spent the rest of the day exploring the area by foot.

1. How long did the class stop for breakfast?

> 1 hour

2. How far away from the hostel was the Natural History Museum on their route?

> 15 miles

3. What was the average speed of the buses on the way back to the hostel (exclude the waiting time)?

> **Hint**: speed = distance / time
>
> 15 miles ÷ 1.5 hours = 10mph

4. How long was the class away from the hostel in total? Give your answer in hours and minutes.
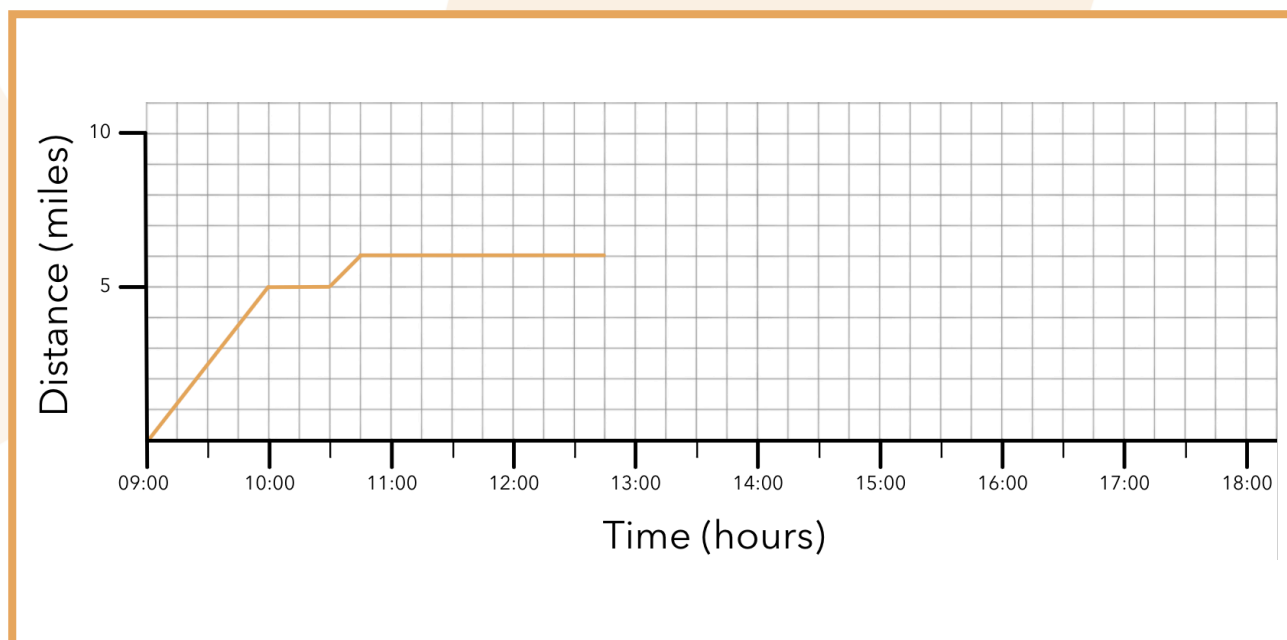
> 7 hours 15 minutes

Day two:

On the following day, the class went on a cycling tour of London. They used the public hire bikes parked outside their hostel and cycled from their hostel to the London Eye.

They stopped to take pictures and watch the street performers before continuing on to Big Ben and Westminster.

The class dropped off their bikes and attended a Houses of Parliament Tour for two hours.
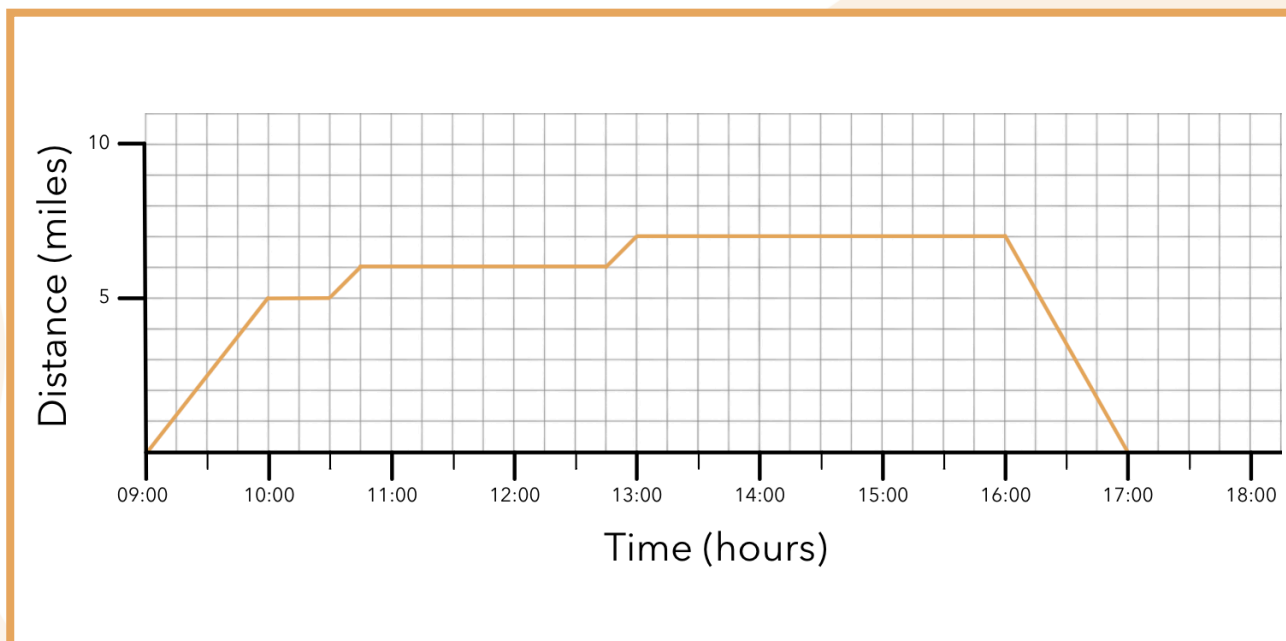
They then walked the mile to Covent Garden which took them 15 minutes. They explored the area for three hours, watching the street performers perform magic tricks, listening to the buskers and exploring the nearby shops, before travelling back to the hostel via the London Underground. They got back to the hostel at 17:00.

1. How long did it take for the class to cycle to the London Eye?

1 hour

2. The graph shows the class' journey to the Houses of Parliament. Using the information above about the rest of the class' day, complete the graph.
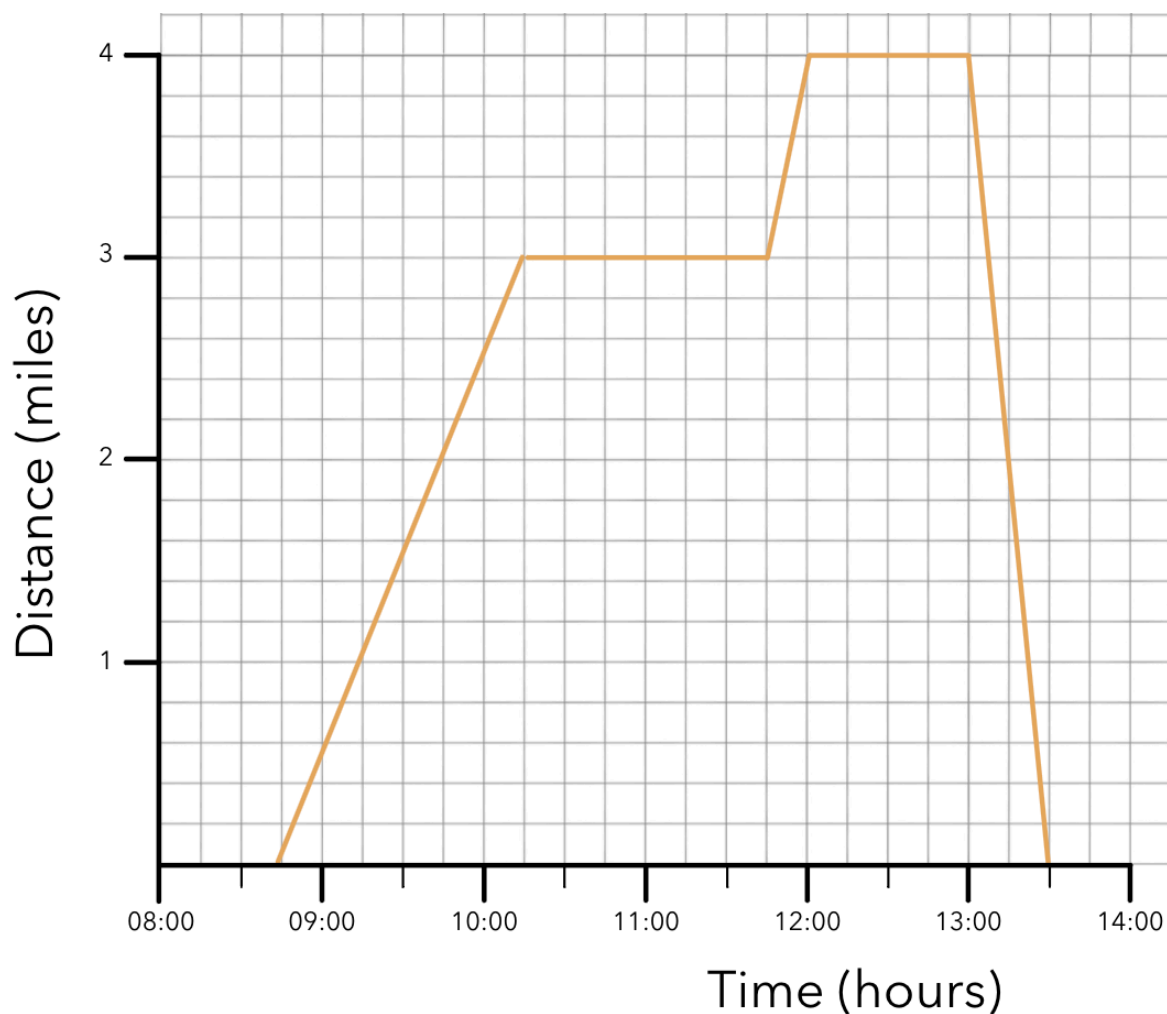
Day three:

On the final day of the trip the class set off at 08:45 and walked three miles along the river to The Shard (a 72-storey skyscraper) for their 10:15 booking to go up to the viewing platform to see London from above.

After an hour and a half they left The Shard and stopped for lunch at Borough Market which was just one mile around the corner and took them 15 minutes to walk there. After stopping for an hour for lunch and to explore the market they left to catch the bus and arrived back at the hostel at 13:30.

1. Draw the time-distance graph that shows the class' day.

2. What was the class' average walking speed between the hostel and The Shard?

3 miles ÷ 1.5 hours = 2mph

3. How far did the bus have to travel back to the hostel?

4 miles

4. How long were the class away from the hostel?

4 hours 45 minutes