

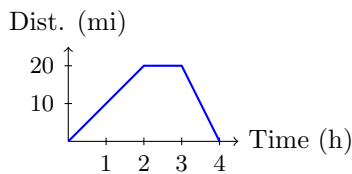
Foundation GCSE: Distance-Time Graphs

Name: _____

Class: _____

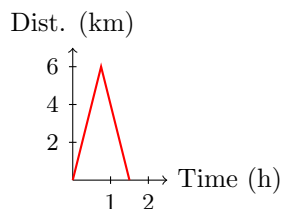
Instructions: Answer all questions. Working out should be shown where appropriate.

1. A person walks from home to a shop 3 km away in 1 hour, stays for 30 minutes, and walks back home along the same route in 1 hour. Draw a distance-time graph to represent this journey.
2. The distance-time graph below shows a cyclist riding 20 miles away over 2 hours, resting for 1 hour, and riding back home in 1 hour.



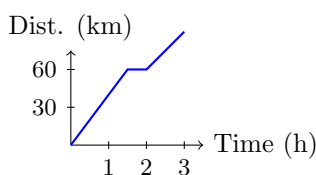
Use the graph to find the speed of the cyclist on the return leg.

3. A delivery van leaves the depot, travels 40 miles in 2 hours, stops for 1 hour to make a delivery, and then returns directly to the depot in 1 hour. Draw a distance-time graph to represent this journey.
4. The distance-time graph below shows a jogger running 6 km away in 45 minutes, turning around, and running back home in 45 minutes.



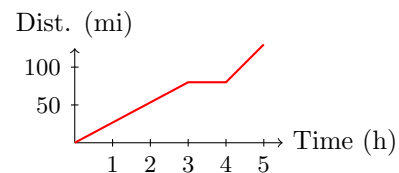
Use the graph to find the overall average speed for the whole trip.

5. The distance-time graph below shows a car moving 60 km away in 1.5 hours, stopping for 30 minutes, and travelling 30 km further in 1 hour.



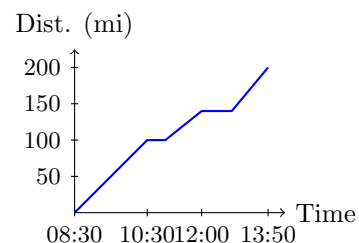
Calculate the speed of the car during the first 1.5 hours.

6. The distance-time graph below represents a bus journey, showing the bus moving 80 miles over 3 hours, pausing for 1 hour, and travelling a further 50 miles in 1 hour.



Calculate the overall average speed of the bus over the 5-hour journey.

7. A train leaves a station, travels 120 miles in 2 hours, stops for 30 minutes, and continues in the same direction for 90 miles in 1.5 hours. Draw a distance-time graph to represent this journey.
8. The distance-time graph below illustrates a motorist starting a journey at **08:30**, driving 100 miles in 2 hours, pausing for 30 minutes, driving a further 40 miles in 1 hour, pausing for another 50 minutes, and covering the final 60 miles in 1 hour.



Calculate the overall average speed for the entire trip.

Answers & Worked Solutions

1. **Sketch required:** A line rising from $(0, 0)$ to $(1, 3)$, flat from $(1, 3)$ to $(1.5, 3)$, then returning to $(2.5, 0)$.
2. 20 mph : Distance 20 miles divided by time 1 hour ($20 \div 1 = 20$).
3. **Sketch required:** A line rising from $(0, 0)$ to $(2, 40)$, flat from $(2, 40)$ to $(3, 40)$, then dropping to $(4, 0)$.
4. 8 km/h : Total distance 12 km (6 out and 6 back), total time 1.5 hours ($12 \div 1.5 = 8$).
5. 40 km/h : Distance 60 km, time 1.5 hours ($60 \div 1.5 = 40$).
6. 26 mph : Total distance 130 miles, total time 5 hours ($130 \div 5 = 26$).
7. **Sketch required:** A line rising from $(0, 0)$ to $(2, 120)$, flat from $(2, 120)$ to $(2.5, 120)$, then rising to $(4, 210)$.
8. 37.5 mph : Total distance $100 + 40 + 60 = 200$ miles, total time $2\text{h} + 30\text{m} + 1\text{h} + 50\text{m} + 1\text{h} = 5\frac{1}{3}$ hours $\left(\frac{16}{3} \text{ h}\right)$. $200 \div \frac{16}{3} = 37.5$.