

Speed, Distance and Time

Maths

Level 2

Exam-style practice · 12 questions · 33 marks · Calculator allowed

Remember

Speed = distance ÷ time. Distance = speed × time. Time = distance ÷ speed. The triangle: D on top, S and T underneath.

Time must be in hours (for mph or km/h). 1 h 20 min = $1\frac{1}{3}$ h = 1.333 h. 45 min = 0.75 h. 2 h 15 min = 2.25 h.

Converting an answer in decimal hours: 2.4 h → $0.4 \times 60 = 24$ min → 2 h 24 min.

Units must match: miles with mph, km with km/h, metres with m/s.

Section A – The three calculations

1. A coach travels 210 miles in 3 h 30 min. What is its average speed? (2 marks)

2. A cyclist rides at 18 km/h for 2 h 45 min. How far does she travel? (2 marks)

3. A lorry travels 275 miles at an average speed of 50 mph. How long does the journey take? Give your answer in hours and minutes. (2 marks)

4. A runner completes 5 km in 26 minutes. What is her average speed in km/h, to 1 decimal place? (3 marks)

Section B – Journeys

5. Dev leaves home at 07:45 and drives 96 miles at an average speed of 40 mph. He then stops for 20 minutes and drives a further 30 miles at 60 mph. What time does he arrive? (4 marks)

6. Two routes from Ashby to Redmere: Route 1 is 84 miles at an average of 56 mph. Route 2 is 70 miles at an average of 40 mph. Which is quicker, and by how many minutes? (4 marks)

7. A train leaves at 09:12 and arrives at 11:42. The journey is 190 km. What is the train's average speed? (3 marks)

8. Sara needs to be at a meeting 45 miles away by 10:30. She expects to average 36 mph. What is the latest she can leave? (3 marks)

Section C – Mixed and units

9. A delivery driver has a 7-hour shift and averages 32 mph including stops. Roughly how many miles can he cover? (1 mark)

10. Convert 20 m/s to km/h. (2 marks)

11. A ferry crossing is 38 km. The ferry travels at 22 km/h. A plane covers the same distance at 480 km/h, but check-in adds 90 minutes. Which is quicker door to door? (4 marks)

12. Tom walked 3.2 km in 40 minutes, then cycled 9 km in 35 minutes. What was his average speed for the whole journey, in km/h? (3 marks)

Speed, Distance and Time – Answers

Level 2 · Working shown so you can check your method, not just the final number.

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Section A

- $210 \div 3.5 = 60$ mph.
- $18 \times 2.75 = 49.5$ km.
- $275 \div 50 = 5.5$ h = **5 h 30 min.**
- 26 min = 0.4333 h. $5 \div 0.4333 = 11.5$ km/h.

Section B

- $96 \div 40 = 2.4$ h = 2 h 24 min. $30 \div 60 = 0.5$ h = 30 min. Total 2:24 + 0:20 + 0:30 = 3 h 14 min. Arrives **10:59**.
- Route 1: $84 \div 56 = 1.5$ h = 90 min. Route 2: $70 \div 40 = 1.75$ h = 105 min. **Route 1** is quicker by **15 minutes**.
- 09:12 to 11:42 = 2.5 h. $190 \div 2.5 = 76$ km/h.
- $45 \div 36 = 1.25$ h = 1 h 15 min. 10:30 – 1:15 = **09:15**.

Section C

- $32 \times 7 = 224$ miles.
- $20 \times 3,600 = 72,000$ m/h = **72 km/h**.
- Ferry: $38 \div 22 = 1.73$ h $\approx$ 1 h 44 min. Plane: $38 \div 480 = 0.08$ h $\approx$ 5 min, + 90 min = 1 h 35 min. **The plane**, by about 9 minutes.
- Total distance 12.2 km; total time 75 min = 1.25 h. $12.2 \div 1.25 = 9.76$ km/h. (Not the average of the two speeds.)

Where Level 2 students lose marks on this topic

- Typing 3 h 30 min as 3.3 hours. Convert minutes to a fraction of an hour: $30 \div 60 = 0.5$.
- Turning 2.4 hours into 2 h 40 min. The 0.4 is a fraction of an hour: $0.4 \times 60 = 24$ minutes.
- Averaging the speeds of two legs instead of using total distance $\div$ total time.