

Speed, Distance, Time - Multi Stage Journeys

ANSWERS



- 1) A car travelled at an average speed of 54 mph for $1\frac{1}{2}$ hours.
The car then joined the motorway and travelled at an average speed 76 mph for 45 minutes.

a) How long is the car's total journey in hours?

2.25 hours

b) What is the total distance travelled by the car?

138 miles

c) What was the car's average speed for the whole journey? Give your answer in mph.

61.3 mph

STAGE 1		STAGE 2		TOTAL JOURNEY	
Av. speed	54 mph	Av. speed	76 mph	Av. speed	61.3 mph
Distance	81 miles	Distance	57 miles	Distance	138 miles
Time	1.5 hours	Time	0.75 hours	Time	2.25 hours

- 2) A lorry travelled at an average speed of 40 km/h for 70 km and then a further 17 km at an average speed of 51 km/h. What was the lorry's average speed for the whole journey? Give your answer in km/h.

41.76 km/h

STAGE 1		STAGE 2		TOTAL JOURNEY	
Av. speed	40 km/h	Av. speed	51 km/h	Av. speed	41.76 km/h
Distance	70 km	Distance	17 km	Distance	87 km
Time	105 mins	Time	20 mins	Time	125 mins

- 3) A sprinter runs at an average speed of 9.1 m/s for 30 seconds and at an average speed of 7.3 m/s over 800m. Calculate the sprinters average speed for the whole run. Give your answer to 2 decimal places.

7.68 m/s

STAGE 1		STAGE 2		TOTAL JOURNEY	
Av. speed	9.1 m/s	Av. speed	7.3 m/s	Av. speed	7.68 m/s
Distance	273 m	Distance	800 m	Distance	1073 m
Time	30 secs	Time	109.589 secs	Time	139.589 secs

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- 4) A boat travels at an average speed of 9 km/h for 6km during the first part of its voyage. For the second part of the boat's journey it travels at an average speed of 12.4 km/h for 150 minutes. Calculate the boat's average speed for the whole journey. Give your answer in km/h.

11.68 km/h

- 5) In a race a swimmer swam 60m at an average speed of 1.8 m/s. For the first 20 m the swimmer swam at an average speed of 1.5 m/s. What was the swimmer's average speed for the second part of the race? Give your answer in m/s.

2 m/s

- 6) Janis and Emma both took part in a 10km fun run. Janis completed the 10 km in 70 minutes. Emma started the run 8 minutes after Janis. Emma caught up with Janis at the 5 km mark. They both ran at a constant speed. Show that it took Emma 54 minutes to complete the run.

Janis

Distance 10 km

Time: 70 mins

Speed: $\frac{60}{7}$ km/h

Distance 5 km

Time: 35 mins

Emma

Distance 10 km

Time: $35 - 8 = 27$ mins

Distance 5 km

Time: $27 \times 2 = 54$ minutes

- 7) Saffi and Jake both cycled a 4 mile mountain bike trail. Saffi completed the trail in 34 minutes. Jake started 4 minutes later and caught up with Saffi after 1 and half miles. They both cycled at a constant speed. Calculate Jake's average speed for the entire route. Give your answer to 2 decimal places.

10.29 mph

- 8) Two vans travel the same distance. One van travels at an average speed of 12 mph. The other van travels at an average speed of 15mph. Both vans leave at the same time and the fastest van arrives 1 hour before the slowest van. How far did the vans travel?

60 miles