Physics · Mechanics · Revision workbook

Speed and journeys

Name _____ Date _____

Key ideas

Average speed is total distance divided by total time. Include all parts of the journey, including stops, when calculating a whole-journey average. Convert minutes to seconds or kilometres to metres before mixing units.

Worked examples

A trolley covers 75 m in 15 s. Find its average speed.

Divide 75 m by 15 s to get 5 m/s.

A runner covers 100 m in 20 s, rests 10 s and covers another 80 m in 20 s. Find the whole-journey average speed.

Total distance is 180 m. Total time is 50 s. The average is 3.6 m/s.

Practice questions

Show your reasoning. Each question is worth 2 marks.

1. A skater covers 54 m in 9 s. Calculate the average speed.

2. A boat travels at 4 m/s for 35 s. Find the distance travelled.

3. A cart moves 96 m at 8 m/s. Find the time taken.

4. A runner covers 750 m in 2 min 30 s. Calculate the average speed in m/s.

5. A train moves at 72 km/h. Convert this speed to m/s.

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6. A toy car covers 25 m in 5 s and then 35 m in 10 s. Find its average speed over the whole journey.

7. A walker travels at 1.5 m/s for 4 min. How far does the walker travel in kilometres?

8. A cyclist covers 600 m in 60 s, waits 30 s, then covers 300 m in 60 s. Find the whole-journey average speed.

9. A bus travels 30 km at 60 km/h and another 30 km at 30 km/h. Find the average speed for the full journey.

10. A delivery robot must travel 360 m in 100 s. It covers the first 120 m in 40 s. What average speed must it maintain over the remaining distance?