

## Speed, Distance and Time Calculations

These 10 ramped GCSE Physics questions are based on realistic situations. They require you to use the speed, distance and time relationship, rearrange equations, and convert units. Read each question carefully and make sure all units are in metres and seconds before calculating.

1. During a 100 m sprint at a school sports day, an athlete completes the race in 12.5 s. Calculate their average speed.
2. A cyclist rides from Hampton Court to Kingston, covering 2400 m in 6 minutes. Calculate their average speed in m/s.
3. A rowing boat on the River Thames travels 1800 m in 4 minutes. Calculate its average speed.
4. A London Underground train travels at an average speed of 18 m/s for 150 s. Calculate the distance travelled.
5. A delivery driver travels 12 km through town at an average speed of 10 m/s. Calculate the time taken in seconds and minutes.
6. An air fryer fan blows hot air through the appliance at a speed of 4.5 m/s. How far does the air travel in 40 s?
7. A high-speed lift in a London office block travels 72 m at an average speed of 3.0 m/s. Calculate the journey time.
8. A ferry travelling between Portsmouth and the Isle of Wight covers 9 km in 12 minutes. Calculate its average speed in m/s.
9. A Formula 1 car travels around a straight section of track 1.8 km long in 24 s. Calculate its average speed in m/s.
10. A rescue helicopter flies from a hospital to an accident scene 54 km away. The helicopter travels at an average speed of 60 m/s. Calculate:
  - a) the time taken in seconds
  - b) the time taken in minutes

Challenge: A satellite orbits Earth and travels  $4.2 \times 10^7$  m in  $3.5 \times 10^4$  s. Calculate its average speed and give your answer in standard form.