Guide to: Speed

maths Links

Explanation:

Speed, distance and time are connected by **Speed = $\frac{\text{Distance}}{\text{Time}}$**, **Distance = Speed × Time**, and **Time = $\frac{\text{Distance}}{\text{Speed}}$**. Always check that your units match: to convert minutes into hours, divide by **60** (for example, 45 minutes = $\frac{45}{60}$ = **0.75 hours**, never 0.45).

For a journey in two or more stages, never average the speeds—always use **Average Speed = $\frac{\text{Total Distance}}{\text{Total Time}}$**.

Example 1: A train travels **198 km** in **2 hours 15 minutes**. Work out its average speed in km/h.

Solution:

Convert time to hours: 15 ÷ 60 = 0.25 hours
Total time = **2.25 hours**
Speed = Distance ÷ Time = 198 ÷ 2.25
198 ÷ 2.25 = 88
Answer: 88 km/h

Example 2: Ben drives **60 miles** at **40 mph**, then **90 miles** at **60 mph**. Find his average speed for the whole journey.

Solution:

Time 1 = 60 ÷ 40 = **1.5 h**; Time 2 = 90 ÷ 60 = **1.5 h**
Total distance = 60 + 90 = **150 miles**
Total time = 1.5 + 1.5 = **3 hours**
Average speed = 150 ÷ 3 = 50 mph
Answer: 50 mph

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