

Speed Distance Time

KS3 Maths · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

A plane flies 1800km in 3 hours. Find its speed.

Step 1 · State the formula

$$\text{Speed} = \text{Distance} \div \text{Time}$$

Step 2 · Substitute values

$$\text{Speed} = 1800 \div 3$$

Step 3 · Calculate

$$\text{Speed} = 600 \text{ km/h}$$

Answer: 600 km/h

Check: $600 \times 3 = 1800\text{km}$ ✓

2. Now try one with the steps

A 100m sprinter finishes in 10 seconds. Find their speed in m/s, then convert to km/h.

Step 1 · Find speed in m/s

Step 2 · Convert: multiply by 3.6

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. A car travels 150 miles in 3 hours. Calculate its average speed. [2]

2. A cyclist travels at 12 mph for 2.5 hours. How far do they travel? [2]

3. A train must cover 360km at 90 km/h. How long will the journey take? [2]

4. Convert a speed of 20 m/s into km/h. [3]

5. A journey of 240 miles is completed in 4 hours 30 minutes. Find the average speed. [3]

6. A car travels the first 60 miles at 30 mph and the next 60 miles at 60 mph. Find the AVERAGE speed for the whole journey. [4]

7. A runner covers 12 km in 2 hours. What is her average speed in km/h? [1]

8. A bus travels at 40 mph for 1.5 hours. How many miles does it travel? [1]

9. How many hours does it take to drive 210 km at 70 km/h? [1]

10. A snail moves at 0.5 cm per second. How far does it move in 2 minutes? [2]

11. A cyclist rides 18 km in 45 minutes. What is her speed in km/h? [2]

12. A train travels at 80 mph for 2 hours 15 minutes. How many miles does it travel? [2]

13. Convert 90 km/h into metres per second. [2]

14. Amir walks 5 km at 4 km/h. How many minutes does the walk take? [2]

15. A plane flies 2,400 km at an average speed of 800 km/h. It leaves at 09:40. At what time does it land? [3]

16. Lucy drives 100 km at 50 km/h and then another 100 km at 100 km/h. Find her average speed for the whole journey in km/h, to 1 decimal place. [3]

4. Before you hand it in

Averaging two speeds by adding and dividing by 2: $(30+60)/2 = 45$ mph

Average speed = TOTAL distance $\div$ TOTAL time — not the average of the two speed values. Unless the time spent at each speed is equal, simple averaging gives the wrong answer.

Mixing units — using minutes with km/h without converting

Always convert time to match the speed unit: if speed is in km/h, convert minutes to hours ($\div 60$) before using $D=S \times T$ or $T=D \div S$.

Writing 2.5 hours as 2 hours 50 minutes

There are 60 minutes in an hour, not 100. $0.5 \text{ hours} = 0.5 \times 60 = 30$ minutes, so $2.5 \text{ hours} = 2 \text{ hours } 30 \text{ minutes}$.