Rates and unit conversions

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Convert 54 km/h to m/s. [2 marks]

$54 \div 3.6 = 15$.

Answer: 15 m/s

2. Convert 8 m/s to km/h. [2 marks]

$8 \times 3.6 = 28.8$.

Answer: 28.8 km/h

3. A car travels 126 km in 1.5 h. Find its average speed. [2 marks]

$v = 126 \div 1.5 = 84$ km/h.

Answer: 84 km/h

4. A tap fills 42 L in 3.5 min. Find its rate in L/min. [2 marks]

$42 \div 3.5 = 12$ L/min.

Answer: 12 L/min

5. Which is cheaper: 750 g of cereal for 4.50 dollars, or 1.2 kg for 6.60 dollars? [3 marks]

750 g $= 0.75$ kg.

First rate: $\frac{4.50}{0.75} = 6.00$ dollars/kg.

Second rate: $\frac{6.60}{1.2} = 5.50$ dollars/kg.

Answer: The 1.2 kg pack.

6. A bus travels 40 km in 50 minutes, then stops for 10 minutes. Find the average speed for the entire hour. [2 marks]

Total time is $50 + 10 = 60$ min $= 1$ h.

Average speed $= \frac{40}{1} = 40$ km/h.

Answer: 40 km/h