

# Compound measures

A car travels 100 km in 2hrs. What is its average speed in km/h? In m/s?

$$50 \text{ km/h} = 13.9 \text{ m/s}$$

Another car travels 100 km in 2hrs 30 minutes. What is its average speed in km/h? In m/s?

$$40 \text{ km/h} = 11.1 \text{ m/s}$$

An object has density  $45\text{kg/m}^3$  and a mass of 135kg. What is the object's volume?

$$3 \text{ m}^3$$

A jet flies for 3hrs 20 minutes at an average speed of 600mph. How far does it fly?

$$2000 \text{ miles}$$

Lewis Hamilton does a lap of Monaco in 1 minute 20 seconds. If one lap is 3.3km long, what was his average speed in km/min? In km/h?

$$2.475 \text{ km/min} = 148.5 \text{ km/h}$$

A block of concrete is 3cm wide, 4cm high and 5cm long. It has a mass of 15kg. What is its density in  $\text{kg/cm}^3$ ? In  $\text{kg/m}^3$ ?

$$0.25 \text{ kg/cm}^3 = 250\,000 \text{ kg/m}^3$$

A person drives 15km to the shops at an average speed of 30km/h, then drives back at an average speed of 60km/h. What is their average speed over the two journeys?

(Hint: The answer is not 45km/h!!)

$$40 \text{ km/h}$$

(It takes them 30 minutes to get to the shop, then 15 minutes to return. They have driven 30km in 45 minutes so their average speed is  $30 \div 0.75 = 40 \text{ km/h}$ ).