

Exercise 9.3S

You need to learn these equivalences.

Length	Mass	Capacity
10 mm = 1 cm	1000 g = 1 kg	1000 ml = 1 litre
100 cm = 1 m	1000 kg = 1 tonne	100 cl = 1 litre
1000 m = 1 km		1000 cm ³ = 1 litre

- Give the name and abbreviation of an appropriate metric unit to measure these quantities.
 - Mass of a whale.
 - Mass of an ant.
 - Width of a book.
 - Amount of petrol in a car.
 - Amount of tea in a mug.
- Convert these measurements to the units shown.
 - 20 mm = ___ cm
 - 400 cm = ___ m
 - 450 cm = ___ m
 - 4000 m = ___ km
 - 0.5 cm = ___ mm
 - 4.5 kg = ___ g
 - 6000 g = ___ kg
 - 6500 g = ___ kg
 - 2500 kg = ___ t
 - 3 litres = ___ ml
- Calculate these average speeds.
 - 10 miles in 4 hours
 - 16 km in 30 minutes
 - 1 hour to travel 80 km
- Calculate the time taken if the average speed is 60 mph and the distance travelled is 150 miles.
- Calculate the distance travelled if the average speed is 15 mph and the journey takes $2\frac{1}{2}$ hours.
- A 420 km journey takes 6 hours and uses 30 litres of petrol. Calculate
 - the average speed
 - the petrol consumption in km per litre.
- Calculate these densities.
 - Mass = 480 kg Volume = 1 m³
 - Mass = 250 g Volume = 6 cm³
 - Mass = 1 tonne Volume = 5 m³
 - Mass = 7.8 kg Volume = 2000 mm³
- If 1500 m is travelled in 4.5 mins, what is the speed in
 - metres per minute
 - metres per second?
- A cube of side 2 cm has a mass of 40 grams.
 - Find the density, in g/cm³, of the material from which the cube is made.
 - A cube of side length 2.6 cm is made from the same material. Find the mass of this cube, in grams.
- Emulsion paint has a density of 1.95 kg/litre. Find
 - the mass of 4.85 litres of the paint.
 - the number of litres of the paint that would have a mass of 12 kg.
- Each of these measurements was made correct to one decimal place. Write the upper and lower bounds for each measurement.
 - 5.8 m
 - 16.5 litres
 - 0.9 kg
 - 6.3 N
 - 10.1 s
 - 104.7 cm
 - 16.0 km
 - 9.3 m/s
- Find the upper and lower bounds of these measurements, which were made to varying degrees of accuracy.
 - 6.7 m
 - 7.74 litres
 - 0.813 kg
 - 6 N
 - 0.001 s
 - 2.54 cm
 - 1.162 km
 - 15 m/s
- Find the upper and lower bounds of these measurements, which are correct to the nearest 5 mm.
 - 35 mm
 - 40 mm
 - 110 mm
 - 45 mm
 - 22 cm
 - 1 m
 - 0.5 m
 - 0.003 km
- Find the maximum and minimum possible total mass of
 - 12 boxes, each of which has mass 14 kg, to the nearest kilogram
 - 8 parcels, each of mass 3.5 kg to the nearest 100 g