Metric Measures – Level One
How to Guide - ANSWERS

Question 1

State which of the units above would be the most suitable to measure the following:

a) The weight of a person **kilograms**

b) The distance a runner completes in a marathon **kilometres**

c) How much liquid a paddling pool can hold **litres**

d) The weight of a tablet (medicine) **milligrams**

e) The thickness of a piece of electrical cable **millimetres**

For the next few questions, the idea is to try to give a sensible estimate. You may not be exactly right, but your answers should not be far too big or far too small.

Question 2

Estimate the length/height/width of the following. Label your units on your answers.

Height of a streetlamp → **usually 5m to 6m**

Distance from Birmingham to Manchester → **113km (70 miles)**

Width of a doorway in an office or public building → **838mm or 83.8cm** (this is the required minimum width to allow for wheelchair access)

Length of a double decker bus → a standard bus is between **10m and 10.9m**

Question 3

Estimate the weight of the following. Label your units on your answers.

A smartphone → **from 113g to 155g**

A washing machine → **65kg to 75kg**

A button → **1g**

A cat → **3.6kg to 4.5kg** for an average adult cat

Question 4

Research question. What is the maximum weight a person should lift alone with no lifting aid? The maximum weight to lift is **20kg for a man and 16kg for a woman** according to government guidelines.

Question 5

Estimate the capacity of the following. Label your units on your answers.

A standard coffee mug → **350ml**

A tablespoon → **15ml**

An Olympic size swimming pool → **2,500,000 litres**

Question 6

Find someone in the room who has a water bottle. Note the capacity of their bottle.

Most water bottles will be **from 500ml to 2 litres** for a very large bottle.

Question 7

300cm = ___**3**_____m   5000ml = ___**5**_____L

50cm = ___**0.5**_____m   60mg = _____**0.06**_____g

2000ml = ___**2**_____L   50m = _____**0.05**_____km

12mm = ___**1.2**_____cm   7000cm = ___**7**_____km

1500g = __**1.5**_____kg   20kg = ___**20,000**_____g

4.2L = __**4200**_____ml   14.5km = _**14,500**_____m

Mixed Questions

a) Damon puts small packs of spices into boxes. Each pack weighs 55g. He puts 200 packs into each box. What is the weight of each box? *Express your answer in kilograms.* **11kg**

55 x 200 = 11000 this answer is grams, so we need to divide by 1000 to convert to kg → 11kg

b) Tessa has four grandchildren. Abbie is 1.3m, Jessie is 0.7m, Tom is 85cm and Jo is 90cm. Who is the shortest? **Jessie is the shortest.**

In order the heights are 0.7m, 85cm, 90cm then 1.3m.

c) How many 225ml glasses can be filled using 6 bottles each containing 2 litres? **53 glasses**

2 litres = 2000ml

2000 x 6 bottles = 12000ml

12000 ÷ 225 = 53.3

OR

2 x 6 = 12 litres

225ml = 0.225L

12 ÷ 0.225 = 53.3

You can fill 53 glasses

d) Terry is buying his daughter a bike. He wants to spend less than £150. He wants the lightest bike possible. Which bike should he buy? **Spokes 2 Go**

Type	Price	Weight
Super Speedy	£140	11.25kg
Wheely Fast	£135	9.75kg
Whizzy Wheels	£168	8500g
Spokes 2 Go	£145	9250g

In order the weights of the bikes are:

8500g (8.5kg), 9250g (9.25kg), 9.75kg, 11.25kg

The 8500g bike is lightest but it is too expensive as it is over £150 so Terry should buy the 9.25kg bike as it is under £150

e) Lyn wants a flask for her soup. She wants to put 400ml of soup into the flask. She wants to buy the flask with the smallest capacity that will hold her soup. Which flask should she buy? *Tick your choice.*

| 0.25L | 800ml | 0.5L ✓ | 1400ml |

The first flask is too small at 250ml. 0.5L is 500ml so very close the amount needed. The other two are too big.

f) Trent is trying to find the length of his wall in order to buy a new shelving unit. He measures the wall and finds it is 2.03m. Here are the shelving units he can buy. He wants to buy the longest unit he can fit into the space. He cannot cut a unit to make it smaller.

Unit Name	Unit Length	Unit Cost
Mahogany effect	253cm	£25.99
Pine effect	198cm	£24.99
Fine wood effect	180cm	£23.99
Dark wood finish	230cm	£28.99
Light wood finish	178cm	£27.99

Which unit should Trent choose?
Pine
203cm is the length of his wall so he needs a unit less than this length

He could buy either the pine, fine wood or light wood finish, but he wants the longest unit he can fit so the pine effect is the best choice.

g) Jamil buys a new television. The box says the weight is 1.8g. Jamil thinks this must be a misprint. Explain why Jamil thinks the box is wrong.

1.8g is extremely light (about a couple of grains of rice) so it would be impossible for a TV to be this light. It is more likely to be 18kg.

h) Fill in the missing information

700cm = ___**7**____m   400ml = __**0.4**_____L

100mm = __**0.1**_____m   300mg = ____**0.3**_____g

6500ml = __**6.5**_____L   25m = ____**0.025**_____km

i) Jason is making rows of chairs for people to sit and watch a play. The space for the chairs is 7.2m. Each chair is 43cm wide. How many chairs can he fit in each row? **16 chairs**

Convert everything to the same units either 720cm and 43cm or 7.2m and 0.43m

Divide the total width by the width of one chair

720 ÷ 43 = 16.74

OR

7.2 ÷ 0.43 = 16.74

We would normally round up to 17 but this is a real-life problem and Jason couldn't fit 17 chairs, so we round down to 16.