

# Metric Measures – Level Two

## How to Guide - ANSWERS

Our answers are generally rounded to 1 or 2 decimal places. It is also acceptable to round to a whole number unless otherwise specified.

### 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**

### Question 2

$$300\text{cm} = \underline{\quad 3 \quad} \text{m}$$

$$5000\text{ml} = \underline{\quad 5 \quad} \text{L}$$

$$50\text{cm} = \underline{\quad 0.5 \quad} \text{m}$$

$$60\text{mg} = \underline{\quad 0.06 \quad} \text{g}$$

$$2000\text{ml} = \underline{\quad 2 \quad} \text{L}$$

$$50\text{m} = \underline{\quad 0.05 \quad} \text{km}$$

$$12\text{mm} = \underline{\quad 1.2 \quad} \text{cm}$$

$$7000\text{cm} = \underline{\quad 7 \quad} \text{km}$$

$$1500\text{g} = \underline{\quad 1.5 \quad} \text{kg}$$

$$20\text{kg} = \underline{\quad 20,000 \quad} \text{g}$$

$$4.2\text{L} = \underline{\quad 420 \quad} \text{cl}$$

$$14.5\text{km} = \underline{\quad 14,500 \quad} \text{m}$$

### Question 3

a) Convert 25 miles to km. **Any answer between 38km and 41km**

b) Convert 46 miles to km. **Any answer between 70km and 74km**

c) Convert 145 km to miles. **Any answer between 89 miles and 92 miles**

d) Convert 20 kilometres to miles. **Any answer between 12 miles to 15 miles**

### Question 4

a) Convert 5cm to inches. **2 inches (accept between 1.8 and 2.8 inches)**

b) Convert 10 inches to cm. **25.5cm (accept between 25 and 26cm)**

c) Convert 18cm to inches. **7 inches (accept between 6.6 and 7.4 inches)**

d) Convert 5 inches to cm. **12.5cm (accept between 12 and 13cm)**

### Question 5

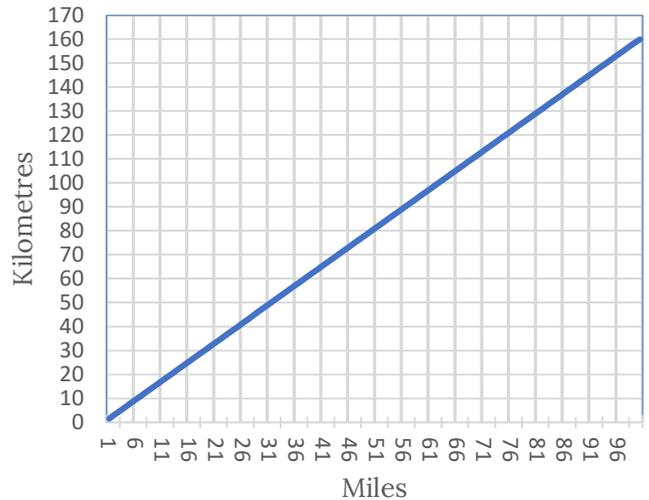
a) 1 litre = 0.2 gallons. Convert 8 gallons to litres. **40 litres**

$$8 \div 0.2 = 40$$

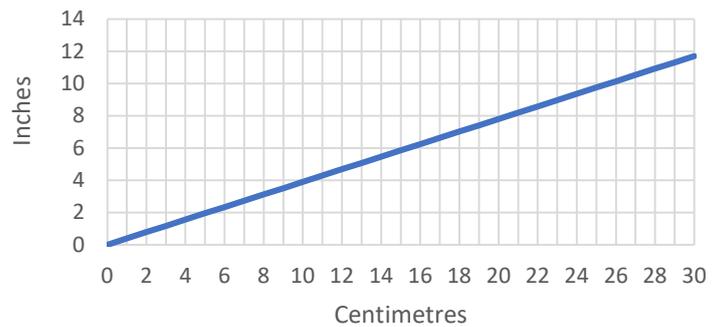
b) 1 oz = 28g. Convert 150oz to grams. **4200g**

$$150 \times 28 = 4200$$

#### Miles to Kilometres Conversion Chart



#### Centimetres to Inches Conversion Chart



c) 1ft = 12 inches. 1 inch = 2.54cm. A statue is 9ft 4 inches. How tall is it in metres?

**2.84m**

9ft is  $9 \times 12$  inches = 108 inches

$108 \times 2.54 = 274.32\text{cm}$

4 inches is  $4 \times 2.54 = 10.16\text{cm}$

$274.32 + 10.16 = 284.48\text{cm}$

OR

9ft is  $9 \times 12$  inches = 108 inches plus the extra 4 inches = 112 inches

$112 \times 2.54 = 284.48\text{cm}$

Convert to metres by dividing by 100 or by moving the decimal two places to the left

2.8448m

d)  $1\text{m}^2 = 10.76$  square feet. A wall has an area of  $25\text{m}^2$ . What is that in square feet?

**269 square feet**

$25 \times 10.76 = 269$

## Mixed Questions

### Useful Facts

1 pound = 16 ounces

1 oz = 28g

1kg = 2.2 lbs

1 gallon = 4.5 litres

1ft = 12 inches

1 inch = 2.54cm

1 mile = 1.6 km

a) 2017 Ford Fiesta does 88.3 miles per gallon. The driver put 20 litres of fuel in the car at the petrol station.

How far can the car travel on the 20 litres of fuel? **392 miles**

1 gallon = 4.5 litres

Convert litres to gallons  $20 \div 4.5 = 4.44$  gallons

88.3 is for 1 gallon  $\rightarrow 88.3 \times 4.44 = 392.052$

b) Fill in the missing information

$$700\text{cm} = \underline{\quad 7 \quad} \text{m}$$

$$400\text{ml} = \underline{\quad 0.4 \quad} \text{L}$$

$$100\text{mm} = \underline{\quad 0.1 \quad} \text{m}$$

$$300\text{mg} = \underline{\quad 0.3 \quad} \text{g}$$

$$6500\text{ml} = \underline{\quad 6.5 \quad} \text{L}$$

$$25\text{m} = \underline{\quad 0.025 \quad} \text{km}$$

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

$$2 \text{ litres} = 2000\text{ml}$$

$$2000 \times 6 \text{ bottles} = 12000\text{ml}$$

$$12000 \div 225 = 53.3$$

You can fill 53 glasses

d) A baker needs  $5\frac{1}{4}$  pounds of sugar to make desserts in a restaurant. How many 500g bags of sugar should they buy? **5 bags**

$$1\text{kg} = 2.2 \text{ lbs}$$

$$\text{If you have a scientific calculator, you can do } 5\frac{1}{4} \div 2.2 = 2.39\text{kg}$$

OR

$$5\text{lbs} \div 2.2\text{lbs} = 2.27\text{kg}$$

$$1\text{lbs} \div 2.2\text{lbs} = 0.45\text{kg}$$

$$\text{Find } \frac{1}{4} \text{ of } 0.45 \text{ by dividing it by } 4 = 0.11\text{kg}$$

$$2.27 + 0.11 = 2.38\text{kg}$$

OR

$$\frac{1}{4} = 0.25 \text{ so } 5\frac{1}{4} = 5.25$$

$$5.25 \div 2.2 = 2.39\text{kg}$$

$$\text{Round to } 2.4\text{kg} \times 1000 \text{ to convert to grams} = 2400\text{g}$$

$$2400 \text{ divided into } 500\text{g bags} = 4.8 \text{ bags}$$

e) Josh has a recipe that asks for a quarter of a pint of milk. 1 litre is 1.76 pints. Josh uses 125ml of milk. Was he correct? **No a quarter of a pint is 140ml**

A quarter is 0.25 pints.

0.25 pints divided by 1.76 pints = 0.14 litres which is a quarter of a pint

0.14 litres x 1000 converts to millilitres = 140ml

OR

1000ml (1 litre) 1 divided by 25ml = 8

This is the multiplication and division factor

	ml		pints
	1000		1.76
÷8	125		0.22 ÷8

1.76 divided by 8 = 0.22 pints

So 125ml is 0.22 pints not 0.25 pints

f) Abid is 1.86m tall. How tall is he in feet and inches? **6ft 1 inch**

1ft = 12 inches                      1 inch = 2.54cm

1.86m x 100 = 186cm

186 ÷ 2.54 = 73.23 inches

73.23 inches ÷ 12 inches = 6.10 feet

6 feet is 6 x 12 inches = 72 so 6 feet and 1.23 inches

g) He wants to buy the longest unit he can fit into the space. He measures the wall and finds it is 80 inches. Which unit should Trent choose? **Pine**

Unit Name	Unit Length	Unit Cost
Mahogany effect	250cm	£26.99
Pine effect	200cm	£24.99
Fine wood effect	180cm	£23.99

1 inch = 2.54cm

80 inches x 2.54cm = 203.2cm so he needs a unit less than this length

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

h) John's doctor has advised him to lose 10lbs in weight. John thinks that this is the same as 6kg. Show whether you agree. **No it is the same as 4.45kg OR No because 6kg is 13.2lbs not 10lbs.**

$$1\text{kg} = 2.2 \text{ lbs}$$

$$10\text{lbs} \div 2.2 = 4.45\text{kg}$$

OR

$$6\text{kg} \times 2.2 \text{ lbs} = 13.2\text{lbs}$$

i) Suzi is taking part in a 10km fun run. She works out that it is 16 miles in length. Show whether Suzi is correct. **No, the fun run is 6.25 miles OR No, as 16 miles would be 25.6km.**

$$1 \text{ mile} = 1.6 \text{ km}$$

$$10\text{km} \div 1.6\text{km} = 6.25 \text{ miles}$$

OR

$$16 \text{ miles} \times 1.6 = 25.6\text{km}$$

j) Sasha walks around the three lakes near her home every week. The first lake has a circumference of 3.5km, the second 2.7km and the third 1.9km. She wants to know how many miles she walks every week. **5.1 miles**

$$1 \text{ mile} = 1.6 \text{ km}$$

$$\text{Add up the total she walks } 3.5 + 2.7 + 1.9 = 8.1\text{km}$$

$$8.1\text{km} \div 1.6\text{km} = 5.0625$$

You could convert each measurement separately

$$3.5 \div 1.6 = 2.1875 \quad 2.7 \div 1.6 = 1.6875 \quad 1.9 \div 1.6 = 1.1875$$

$$\text{Then add them up} = 5.0625$$