

Length, mass and capacity – Checkpoint Sec 1 Math

1. No.2

Chen has three pieces of metal.

The masses are 6 kg, 3.3 kg and 0.75 kg.

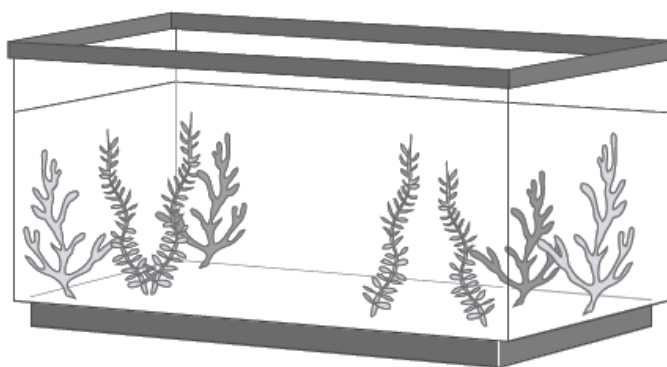
Work out the total mass, in kilograms.

$$\begin{aligned} \text{Total Mass} &= 6\text{ kg} + 3.3\text{ kg} + 0.75\text{ kg} \\ &= \underline{\underline{10.05\text{ kg}}} \end{aligned}$$

10.05

kg [1]

2. No.7

Samira is measuring the capacity of a fish tank.

Draw a ring around the most suitable unit for this measurement.

mm³m³

l

ml

[1]

3. No.8

Write these measurements in order of size from smallest to largest.

540m	$\frac{504 \text{ cm}}{100} = 5.04 \text{ m}$	$5.04 \text{ km} \times 1000$ <u>5040m</u>	$\frac{5400 \text{ mm}}{1000}$ <u>5.4m</u>
<u>504cm</u>	<u>5400mm</u>	<u>540m</u>	<u>5.04km</u>
.....			
smallest			largest

[1]

4. No.11

A man has a mass of 120 kg.

A bus has a mass of 17 tonnes.

A rhinoceros beetle can lift an object 850 times its own body mass.

Work out the number of buses the man could lift if he could lift 850 times his own body mass.

$$\text{Man Mass} = 120 \text{ kg.}$$

$$\text{Bus Mass} = 17 \text{ tonnes.}$$

$$1 \text{ tonne} = 1000 \text{ kg}$$

$$17 \text{ tonnes} = ?$$

$$17 \times 1000 = 17000 \text{ kg}$$

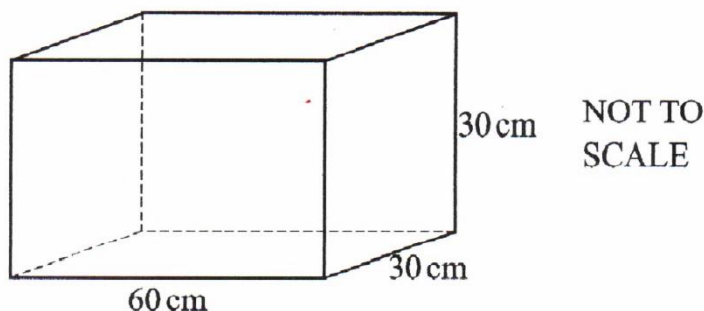
$$\text{Mass in tonnes} = \frac{850 \times 120}{1000} = \underline{\underline{102}}$$

$$\begin{aligned} \text{Number of buses} &= 102 \div 17 \\ &= \underline{\underline{6}} \text{ buses} \end{aligned}$$

$$\underline{\underline{6 \text{ buses}}} \quad [2]$$

5. No.23

A fish tank in the shape of a cuboid has length 60 cm, depth 30 cm and height 30 cm.



(a) Find the capacity of the fish tank in litres.

$$\begin{aligned}\text{Volume} &= L \times W \times h \\ &= 60 \times 30 \times 30 \\ &= \underline{\underline{54,000 \text{ cm}^3}}\end{aligned}$$

$$1000 \text{ cm}^3 = 1 \text{ L}$$

$$54000 \text{ cm}^3 = ?$$

$$\frac{54000 \times 1}{1000} = \underline{\underline{54 \text{ L}}}$$

$$\underline{\underline{54}} \text{ L} \quad [2]$$

(b) The fish tank contains 47.7 litres of water.
Find the height of the water.
Give your answer in centimetres.

$$\text{Volume of fish tank} = 47.7 \text{ L}$$

$$1 \text{ L} = 1000 \text{ cm}^3$$

$$47.7 \text{ L} = ?$$

$$\underline{\underline{47.7 \times 1000 = 47700 \text{ cm}^3}}$$

$$\text{height} = \frac{47700 \text{ cm}^3}{60 \times 30}$$

$$h = \underline{\underline{26.5 \text{ cm}}}$$

$$\underline{\underline{26.5}} \text{ cm} \quad [1]$$

6. No.9

Convert 160 kilometres into miles.

$$1\text{ km} = 0.621\text{ mile}$$

$$160 - ?$$

99.36 miles [1]

7. No.11

Tick (✓) to show if each of these statements is true or false.

One has been done for you.

	True	False
1 m = 100 cm	☒	☐
1 mm = 0.01 cm	☐	☒
1 kg = $\frac{1}{1000}$ g	☒	☐
1 tonne = 1000 kg	☒	☐

[1]

8. No.13

Lily pours 5 litres of water into glasses.

Each glass holds 225 millilitres.

Calculate how many glasses Lily can fill completely.

$$1\text{ Litre} = 1000\text{ ml}$$

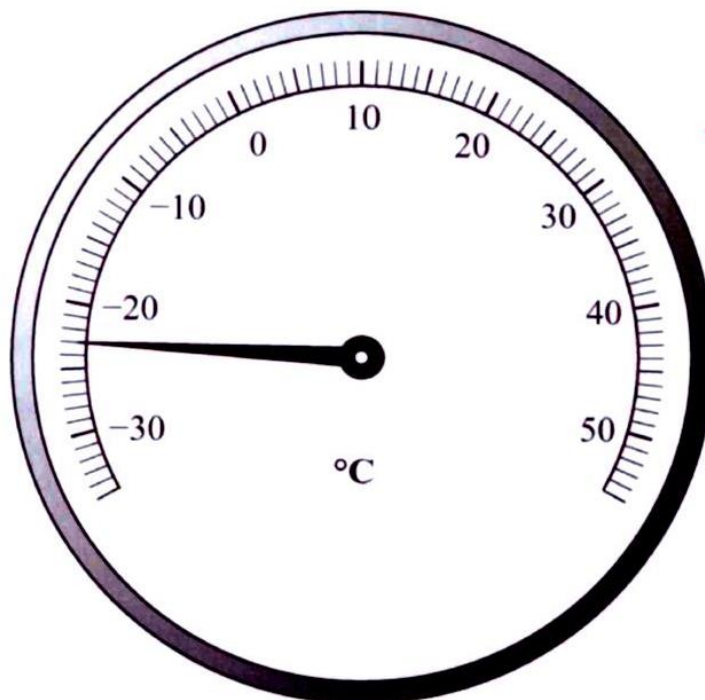
$$5\text{ L.} = 5000\text{ ml}$$

$$\frac{5000}{225} = 22.22$$

22 [1]

9. No.1

Write down the temperature shown on this scale.



- Count from
zero towards
the negative

$$\begin{array}{r} -20 \\ + 03 \\ \hline -23 \end{array}$$

-23

°C

[1]

10. No.5

Choose from these units to give the most appropriate unit of measurement for each item.

g

~~kg~~

m

~~l~~

m/

~~m²~~cm²

The area of a classroom floor.

m²

The mass of a child.

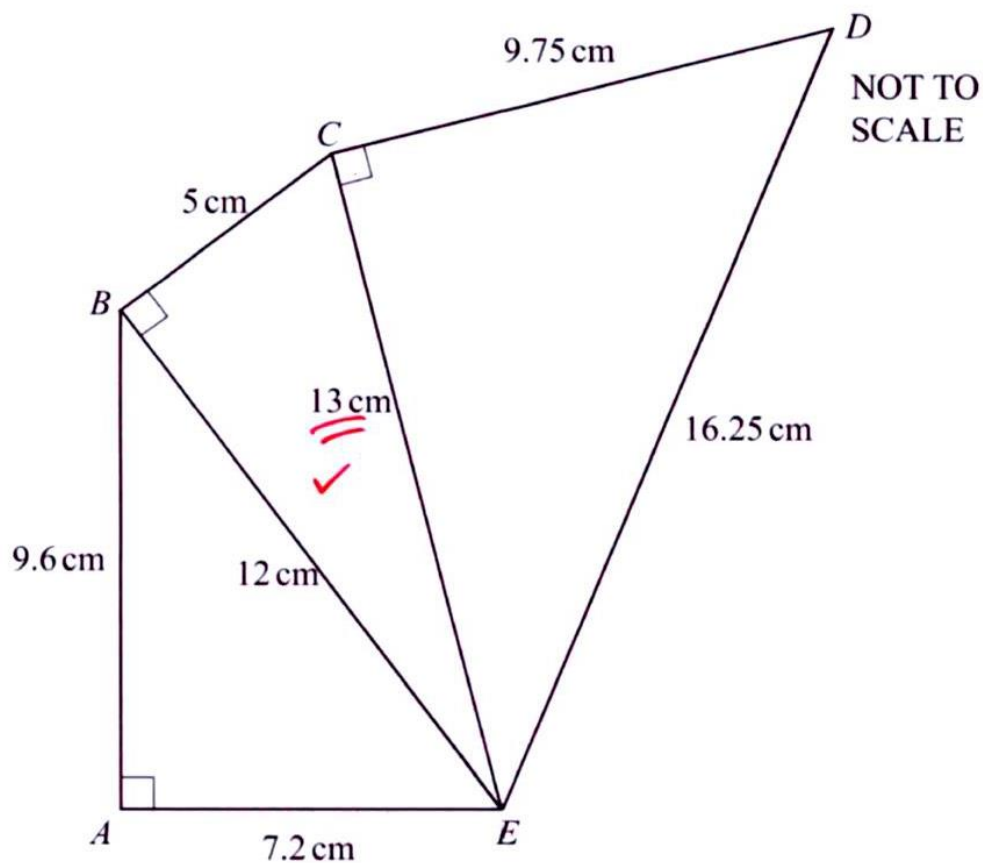
kg

The amount of water in a swimming pool.

l

[1]

11. No.8



Write down the length of the hypotenuse of triangle BCE.

$\triangle BCE$ is right angled triangle

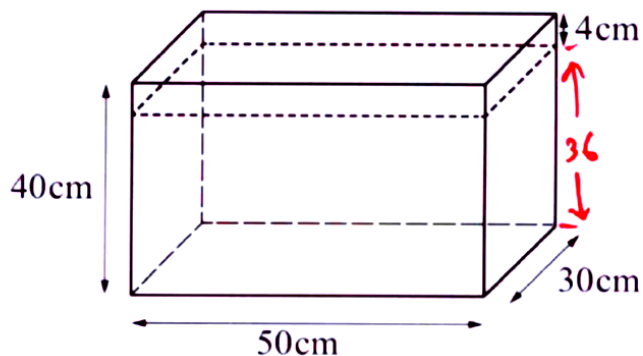
hypotenuse = 13 cm

hypotenuse is the longest side of the triangle.

..... 13 cm [1]

12. No.27

The diagram shows a fish tank.

NOT TO
SCALE

The fish tank has a capacity of 60 litres.

Lily uses a 2000 ml jug to put water in the fish tank.

She stops when the water is 4 cm from the top.

Work out the number of jugs of water that Lily uses.

$$\text{Volume of water} = 36 \times 30 \times 50 \\ = 54,000 \text{ cm}^3.$$

$$1 \text{ ml} = 1 \text{ cm}^3.$$

$$2000 \text{ ml} = 2000 \text{ cm}^3$$

$$\therefore 1 \text{ Jug} = 2000 \text{ cm}^3 \\ ? = 54,000 \text{ cm}^3$$

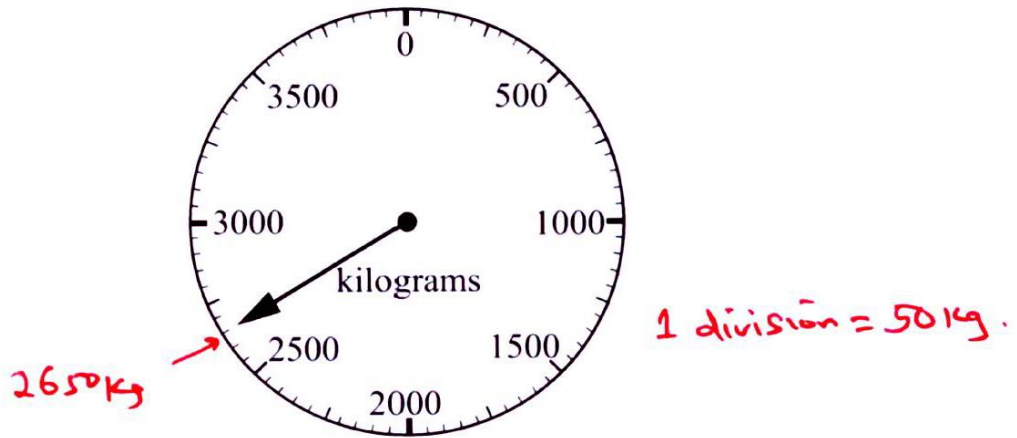
$$\text{Number of Jugs} = \frac{54,000 \text{ cm}^3}{2000 \text{ cm}^3} \\ = 27 \text{ Jugs}$$

27.

[3]

13. No.24

The scale shows the mass of a van.



Write down the mass of the van in **tonnes**.

$$1 \text{ tonne} = 1000 \text{ kg}$$

$$? = 2650 \text{ kg}$$

$$\frac{2650 \text{ kg}}{1000} = 2.65 \text{ tonnes}$$

..... 2.65 tonnes [1]

14. No.20

(a) Convert 0.003 m^3 into cubic centimetres.

$$1 \text{ m}^3 = 1 \text{ m} \times 1 \text{ m} \times 1 \text{ m}$$

$$= 100 \text{ cm} \times 100 \text{ cm} \times 100 \text{ cm}$$

$$= 1,000,000 \text{ cm}^3$$

$$0.003 \times 1,000,000 = 3000 \text{ cm}^3$$

..... 3000 cm³ [1]

(b) Convert your answer to part (a) into litres.

$$1000 \text{ cm}^3 = 1 \text{ Litre}$$

$$3000 \text{ cm}^3 = 3 \text{ Litres}$$

..... 3 litres [1]

15. No.15

Complete the gaps in these statements.

The first one has been done for you.

$$1250 \text{ metres} = \underline{\quad 1.25 \quad} \text{ kilometres}$$

$$\underline{\quad 4.52 \quad} \text{ centimetres} = 45.2 \text{ millimetres}$$

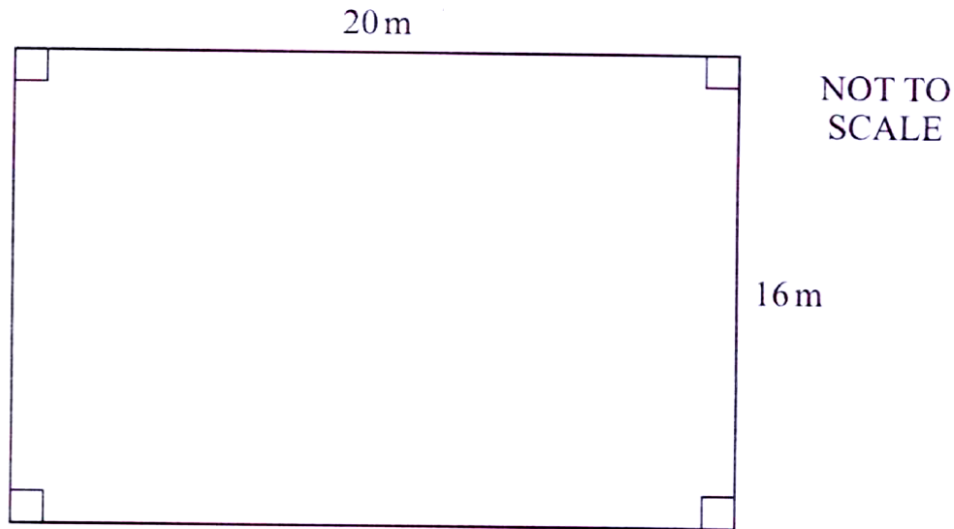
$$0.604 \text{ litres} = \underline{\quad 604 \quad} \text{ millilitres}$$

$$1.87 \text{ } \underline{\quad \text{tonnes} \quad} = 1870 \text{ kilograms}$$

[2]

16. No.23

The diagram shows Hassan's garden.



1 m^3 of soil has a mass of 1.2 tonnes.

Hassan buys 30 tonnes of soil.

He spreads the soil evenly over his garden.

Calculate the depth, in centimetres, of soil he spreads on his garden.

$$\begin{array}{l} 1 \text{ m}^3 \rightarrow 1.2 \text{ tonnes} \\ ? \rightarrow 30 \text{ tonnes} \end{array}$$

$$\frac{1 \times 30}{1.2} = 25 \text{ m}^3$$

Let depth be x .

$$x \times 20 \text{ m} \times 16 \text{ m} = 25 \text{ m}^3$$

$$x = \frac{25 \text{ m}^3}{320 \text{ m}^2} = 0.078125 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$0.078125 \text{ m} = 7.8125 \text{ cm}$$

$$\underline{\underline{7.8125}} \text{ cm} \quad [3]$$

17. No.3

Gabriella has 3 bottles of water.
Each bottle contains 500 ml of water.

Work out the total quantity of water.
Give your answer in litres.

$$\begin{aligned}
 3 \times 500 \text{ ml} &= 1500 \text{ ml} \\
 1000 \text{ ml} &= 1 \text{ litre} \\
 1500 \text{ ml} &= \frac{1500 \text{ ml}}{1000 \text{ ml}} \times 1 \text{ litre} = 1.5 \text{ l} \quad [1]
 \end{aligned}$$

18. No.8(a)

Carlos swims 90 lengths of a swimming pool.
The swimming pool is 25 m long.

(a) Work out the total distance Carlos swims.
Give your answer in kilometres.

$$\begin{aligned}
 \text{Total length} &= (90 \times 25) \text{ m} \\
 &= 2250 \text{ m} \\
 1000 \text{ m} &= 1 \text{ km} \\
 2250 \text{ m} &= \frac{2250 \text{ m}}{1000 \text{ m}} \times 1 \text{ km} = 2.25 \text{ km} \quad [2]
 \end{aligned}$$

19. No.16

Here are four lengths.

0.075 km

7.6 m

77 cm

780 mm

75 m

7.6 m

0.77 m

0.78 m

Put them in order from smallest to largest.

$$\begin{aligned}
 &\underline{77 \text{ cm}} \quad \underline{780 \text{ mm}} \quad \underline{7.6 \text{ m}} \quad \underline{0.075 \text{ km}} \\
 &\text{smallest} \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \qquad \text{largest} \quad [2]
 \end{aligned}$$

20. No.18

Decide if these statements are true or false.

Tick (✓) the correct boxes.

2.3 kilograms $\neq$ 23 000 grams*2.3 kg = 2300g $\neq$ 23000g*150 millilitres $<$ 0.3 litres*150 ml = 0.15L which is $<$ 0.3L*5000 millimetres $>$ 5 metres*5000 ml = 5m*

True

False

☒☐☒☐☐☒

[1]

21. No.5

Some units of measurement are shown in the box.

millimetres	kilometres	millilitres
	centimetres	kilograms
metres	litres	grams

Choose the most appropriate unit from the box for each of these measurements.

The capacity of a spoon.

millilitres

The mass of a piano.

Kilograms

The distance travelled in an aeroplane.

Kilometres

[2]

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