Metric Units and Conversions

GCSE Mathematics • **Foundation Tier** • Grades 1–3 • Non-calculator

WORKED SOLUTIONS

Name: worked example Class: _____ Total: 51 / 51

Show all your working. Marks are given for correct method as well as the final answer.

1. Change 3.6 m into centimetres. **[1 mark]**

1 m = 100 cm
3.6 × 100 = 360

Answer: 360 cm

2. Change 4 500 g into kilograms. **[1 mark]**

1 kg = 1000 g
4500 ÷ 1000 = 4.5

Answer: 4.5 kg

3. Change 0.8 litres into millilitres. **[1 mark]**

1 litre = 1000 ml
0.8 × 1000 = 800

Answer: 800 ml

4. Change 250 cm into metres. **[1 mark]**

250 ÷ 100 = 2.5

Answer: 2.5 m

5. Change 7 km into metres. **[1 mark]**

1 km = 1000 m

Answer: 7000 m

6. Change 45 mm into centimetres. **[1 mark]**

1 cm = 10 mm
45 ÷ 10 = 4.5

Answer: 4.5 cm

7. Change 2.3 tonnes into kilograms. **[2 marks]**

1 tonne = 1000 kg
2.3 × 1000 = 2300

Answer: 2300 kg

8. Write these in order, smallest first: 0.5 m, 45 cm, 520 mm. **[3 marks]**

convert everything to cm first
0.5 m = 50 cm 520 mm = 52 cm
you cannot compare different units
45 < 50 < 52

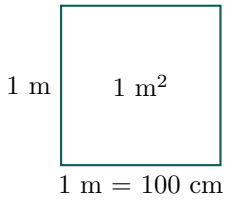
Answer: 45 cm, 0.5 m, 520 mm

9. Write these in order, smallest first: 1.2 kg, 950 g, 0.08 tonnes. **[3 marks]**

in grams: 1200 950 80 000

Answer: 950 g, 1.2 kg, 0.08 tonnes

10. Change 5 m^2 into cm^2. **[3 marks]**



$1\ m^2 = 100 \times 100 = 10\,000\ cm^2$
NOT 100 -- area scales by the square
$5 \times 10\,000 = 50\,000$

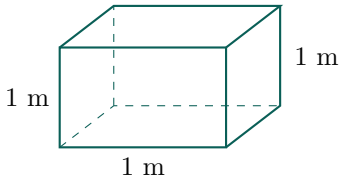
Answer: $50\,000\ cm^2$

11. Change 40 000 cm^2 into m^2. **[3 marks]**

$\div 10\,000$
$40\,000 \div 10\,000 = 4$

Answer: $4\ m^2$

12. Change 3 m^3 into cm^3. **[3 marks]**



$1\ m^3 = 100^3 = 1\,000\,000$
volume scales by the CUBE
$3 \times 1\,000\,000$

Answer: $3\,000\,000\ cm^3$

13. Change 2 500 cm^3 into litres. **[2 marks]**

$1000\ cm^3 = 1$ litre
$2500 \div 1000$

Answer: 2.5 litres

14. A plank is 2.4 m long. 65 cm is cut off. Work out the length left, in centimetres. **[3 marks]**

2.4 m = 240 cm
240 − 65 = 175

Answer: 175 cm

15. A jug holds 1.5 litres. A glass holds 250 ml. Work out how many full glasses the jug fills. **[3 marks]**

1.5 litres = 1500 ml
1500 ÷ 250 = 6

Answer: 6

16. A bag of sand weighs 25 kg. Work out the weight of 18 bags, in tonnes. **[3 marks]**

$25 \times 18 = 450$ kg
$450 \div 1000 = 0.45$

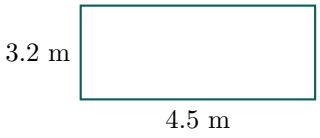
Answer: 0.45 tonnes

17. Write down a sensible metric unit for the mass of a paperclip. **[1 mark]**

far too light for kg

Answer: grams

18. A room measures 4.5 m by 3.2 m. Carpet costs $18 per square metre.



(a) Work out the floor area. **[2 marks]**

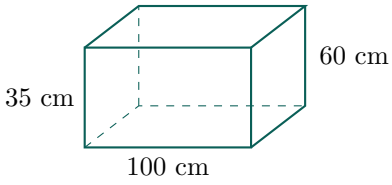
4.5×3.2
$= 14.4$ m^2

(b) Work out the cost of the carpet. **[3 marks]**

14.4×18
= £259.20

Answer: 14.4 m^2 ; £259.20

19. A water butt holds 210 litres.



(a) Work out its volume in cm^3. **[2 marks]**

$100 \times 60 \times 35$
$= 210\,000$ cm^3

(b) Work out its capacity in litres and say whether the butt is big enough. **[3 marks]**

$210\,000 \div 1000 = 210$ litres
exactly 210, so yes -- but only just

Answer: 210 000 cm^3 ; 210 litres, just big enough

20. A path is 12 m long and 80 cm wide.

(a) Work out its area in m^2. **[3 marks]**

80 cm = 0.8 m

both measurements in the SAME unit

$12 \times 0.8 = 9.6\ m^2$

(b) Slabs are 40 cm by 40 cm. Work out how many are needed. **[3 marks]**

one slab = $0.4 \times 0.4 = 0.16\ m^2$

$9.6 \div 0.16 = 60$

Answer: ____ $9.6\ m^2$; 60 slabs____

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