

# The Panda Math Tutor

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## Measurements

### Solutions & Answer Key

Full worked solutions, marking scheme & answer key

IGCSE Mathematics

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Companion to the *Student Worksheet*

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**Note**

**About this booklet.** These are the complete solutions to every question in the *Measurements — Student Worksheet*. Question numbers match exactly (U1–U7, AV1–AV7, S1–S7, D1–D7, B1–B7, A1–A6, the Mixed Review MR1–MR10, and the examination questions Q1–Q8).

Each solution follows the notes' reasoning pattern — identify what is given, state what is required, choose the formula *and say why it fits*, substitute, then check the answer and its units. Depth is scaled to difficulty. Part V collects the common mistakes to watch for, and Part VI is a quick answer key for fast marking.

## 4 Part IV — Complete Solutions

**Note**

Each solution follows the same reasoning pattern used in the notes: identify what is given, decide what is required, choose the method *and say why it fits*, work through it, then check. Depth is scaled to difficulty — brief for basic questions, fuller for harder ones.

### 4.1 Solutions — Units and Conversions

**Solution U1**

Decide each time whether the new unit is *smaller* (multiply) or *larger* (divide).

(a) km → m is a smaller unit, so multiply by 1000:

$$3.7 \times 1000 = 3700 \text{ m.}$$

(b) cm → m is a larger unit, so divide by 100:

$$480 \div 100 = 4.8 \text{ m.}$$

(c) ml → litres is a larger unit, so divide by 1000:

$$6250 \div 1000 = 6.25 \text{ litres.}$$

**Solution U2**

(a)  $2.4 \times 1000 = 2400 \text{ kg.}$       (b)  $7500 \div 1000 = 7.5 \text{ kg.}$       (c)  $0.85 \times 1000 = 850 \text{ mg.}$

Notice the pattern: tonne → kg → g → mg each use a factor of 1000.

**Solution U3**

(a) 1 litre =  $1000 \text{ cm}^3$ , so  $3.6 \times 1000 = 3600 \text{ cm}^3$ .

(b)  $1 \text{ m}^3 = 1\,000\,000 \text{ cm}^3$ , so

$$45\,000 \div 1\,000\,000 = 0.045 \text{ m}^3.$$

(c)  $1 \text{ m}^3 = 1000$  litres, so  $2.5 \times 1000 = 2500$  litres.

**Solution U4**

(a) 4 hours =  $4 \times 60 = 240$  minutes, so the total is  $240 + 24 = 264$  minutes.

(b) Convert only the minutes part into a fraction of an hour:

$$4 + \frac{24}{60} = 4 + 0.4 = 4.4 \text{ hours.}$$

(c)  $264 \times 60 = 15\,840$  seconds.

**Common error:** writing 4 hours 24 minutes as 4.24 hours. The minutes must be divided by 60 first.

**Solution U5**

**Choose the method:** the two lengths are in different units, so convert before dividing.

$$2.4 \text{ m} = 2.4 \times 100 = 240 \text{ cm.}$$

$$\text{Number of pieces} = 240 \div 15 = 16.$$

**Answer:** 16 pieces. **Check:**  $16 \times 15 = 240 \text{ cm} = 2.4 \text{ m.}$  ✓

**Solution U6**

(a)  $45 \times 1.6 = 72 \text{ km.}$

(b)  $30 \times 2.54 = 76.2 \text{ cm.}$

(c)  $5 \times 30.5 = 152.5 \text{ cm.}$

In each case the imperial unit is the *larger* one, so we multiply to obtain the metric value.

## Preview ends here

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