Worked answers | Metric measurement

Suitable units and accuracy

6 questions | 10 marks

Equivalent correct methods earn the corresponding marks.

1. Choose a suitable instrument for the mass of a small packet: a ruler or kitchen scales. [1 mark]

The quantity is mass, not length.

Answer: Kitchen scales.

2. A pencil runs from 1 cm to 16 cm on a ruler. Find its length. [1 mark]

$16 - 1 = 15$ cm.

Answer: 15 cm

3. For measuring 125 mL, which jug has finer markings: 5 mL gaps or 50 mL gaps? [2 marks]

Smaller gaps allow a more detailed reading.

125 is a multiple of 5 but lies between the 50 mL marks.

Answer: The jug with 5 mL gaps.

4. One book is measured four times: 24, 24, 25 and 42 cm. Which reading should be checked first? Explain. [2 marks]

It is far from the three readings near 24-25 cm.

Check the ruler's position and repeat; do not simply assume the true length.

Answer: 42 cm.

5. A ruler shows only whole centimetres. A learner reports a length of exactly 8.367 cm. Explain the problem. [2 marks]

A position between 8 and 9 cm can only be estimated more roughly from this scale.

A suitably finer instrument would be needed.

Answer: The scale does not support that many decimal places.

6. A container needs 1 L of water. Use $1\,\mathrm{L} = 1000\,\mathrm{mL}$. How many full 250 mL cups are needed, and what must you count carefully? [2 marks]

$1000 \div 250 = 4$.

Keep a record so no fill is missed or counted twice.

Answer: 4 cups; count all four complete fills.