MATHEMATICS · GRADES 4-6

Reading scales and measurement instruments

Difficulty level: Intermediate

Mathematics: Grades 4-6

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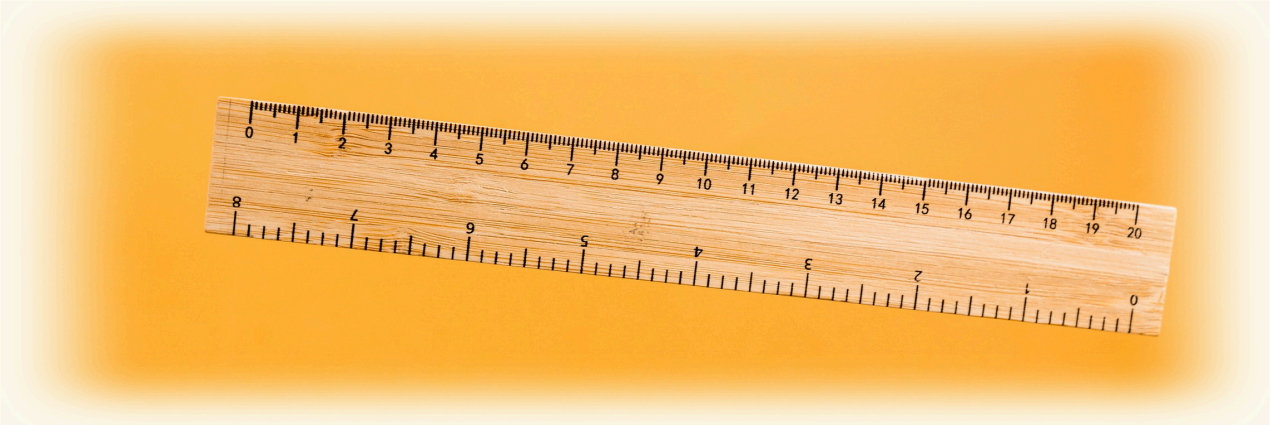
Overview of the concept

This is how you read a ruler, a kitchen scale, or a fuel gauge correctly, so a recipe, a parcel, or a tank of gas comes out right. A cook who misreads a scale adds too much flour, and a driver who misreads a fuel gauge runs out of gas on the road. A parcel weighed wrong costs more to post, and a piece of wood cut to the wrong mark wastes the whole board. Reading a scale right is the difference between a job done once and a job done twice.



Rule

To read a scale, work out what one small division is worth, count how many divisions the pointer has moved, then multiply.

The same steps work for a ruler, a balance, a jug, or a thermometer.

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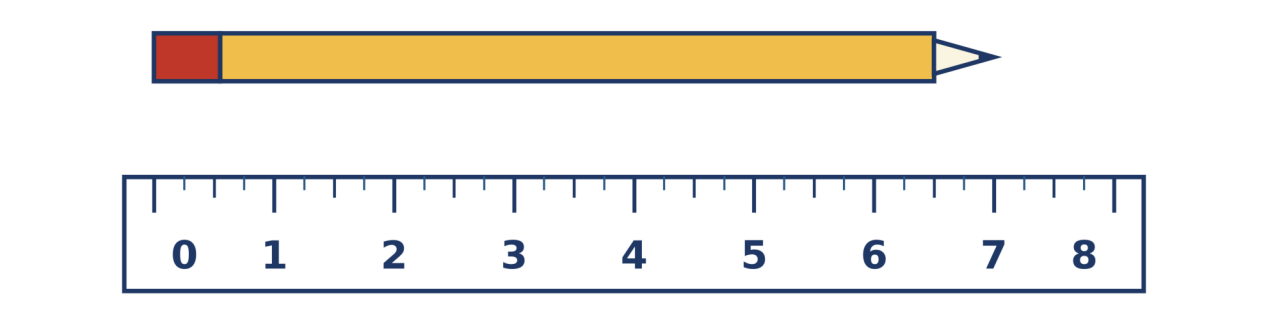
Worked examples

EXAMPLE 1

Q A ruler has marks every 1 mm, with longer marks every 10 mm. A pencil ends at the 7th long mark past 0. How long?



SOLUTION

The long marks are the centimetre marks: 1 cm, 2 cm, 3 cm, ...

7th long mark = 7 cm

Answer: 7 cm

Find what one long mark means: every 10 mm is 1 cm.

Count the long marks to the pencil end: 7.

Length: 7 cm

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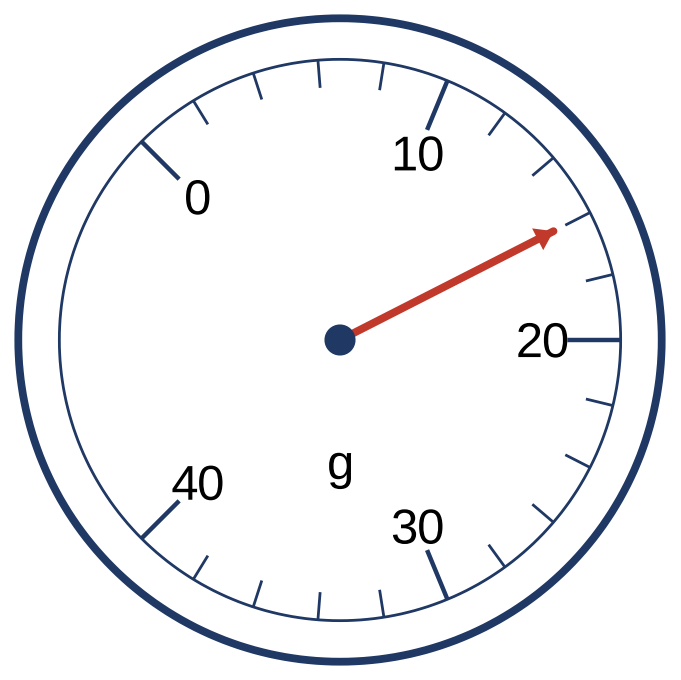
EXAMPLE 2

Q A scale has small divisions of 2 g. The pointer is 3 small divisions past 10 g. What is the reading?



SOLUTION

Start: 10 g

Each small division: 2 g

10 + 3 × 2 = 16 g

Find the value of one small division: 2 g.

Count divisions past 10 g: 3, so 3 × 2 = 6 g more.

Reading: 10 + 6 = 16 g

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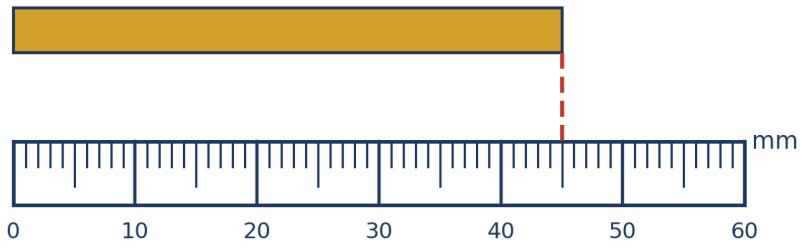
Practice questions

1 Read the ruler in the diagram. What is the length in millimetres?



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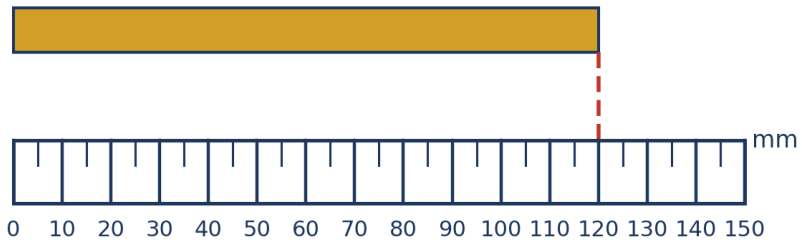
2 Read the ruler in the diagram. How long is the bar in millimetres?



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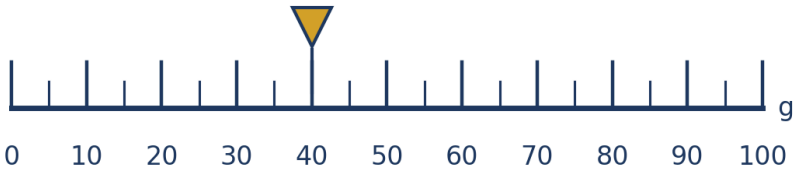
3 Read the scale in the diagram. What is the mass in grams?



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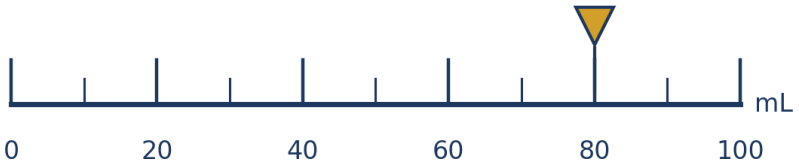
4 Read the scale in the diagram. What is the volume in millilitres?



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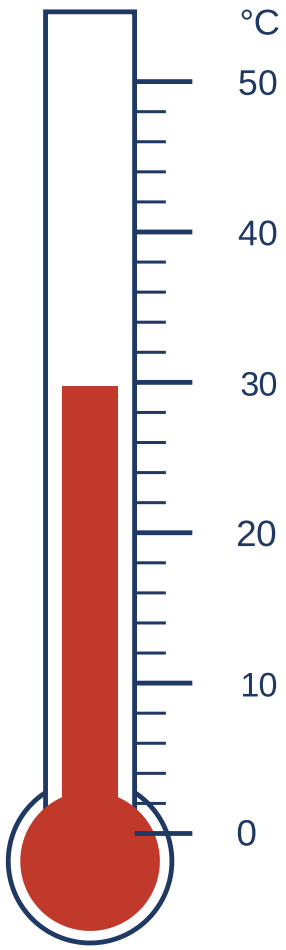
5 **Read the thermometer in the diagram. What is the temperature in degrees?**



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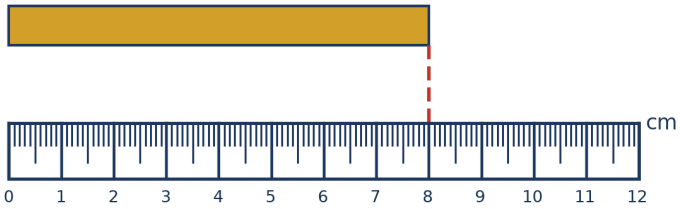
6 Read the ruler in the diagram. What is the length in centimetres?



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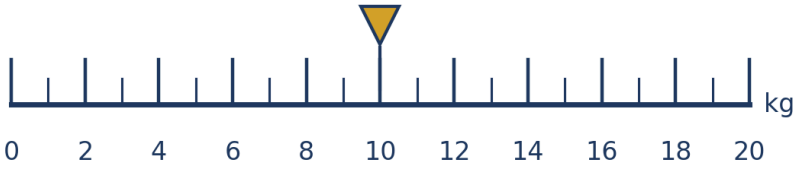
7 Read the scale in the diagram. What is the mass in kilograms?



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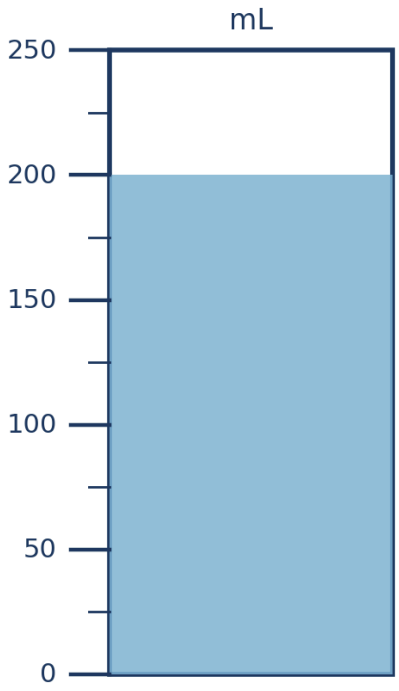
8 **Read the measuring jug in the diagram. What is the volume in millilitres?**



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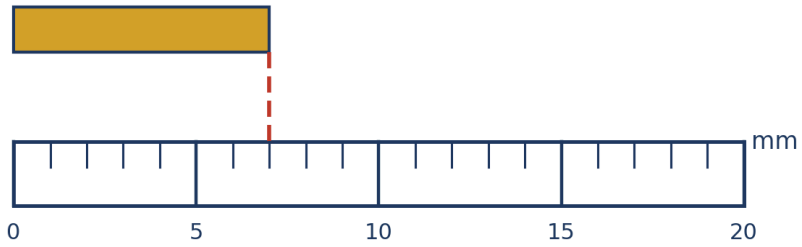
9 Read the ruler in the diagram. What is the length of the bar in centimetres?



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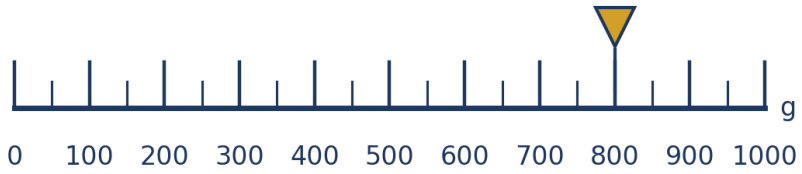
10 Read the scale in the diagram. What is the mass in grams?



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ANSWER KEY

1. 45 mm

2. 120 mm

3. 40 g

4. 80 mL

5. 30 degrees

6. 8 cm

7. 10 kg

8. 200 mL

9. 0.7 cm

10. 800 g

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