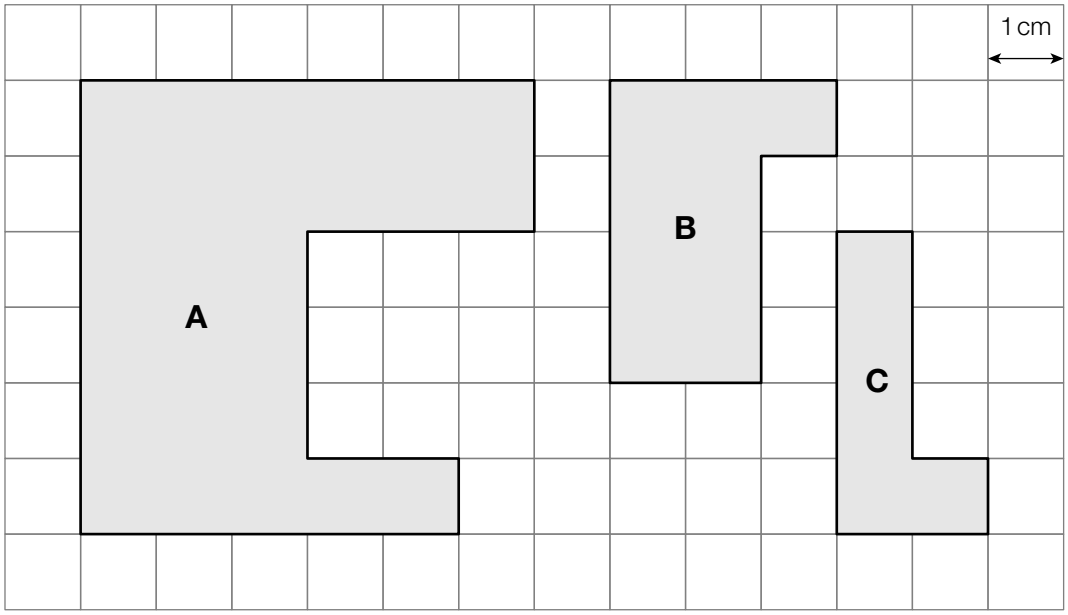
Measurement: perimeter, area and volume

Helpful Hint

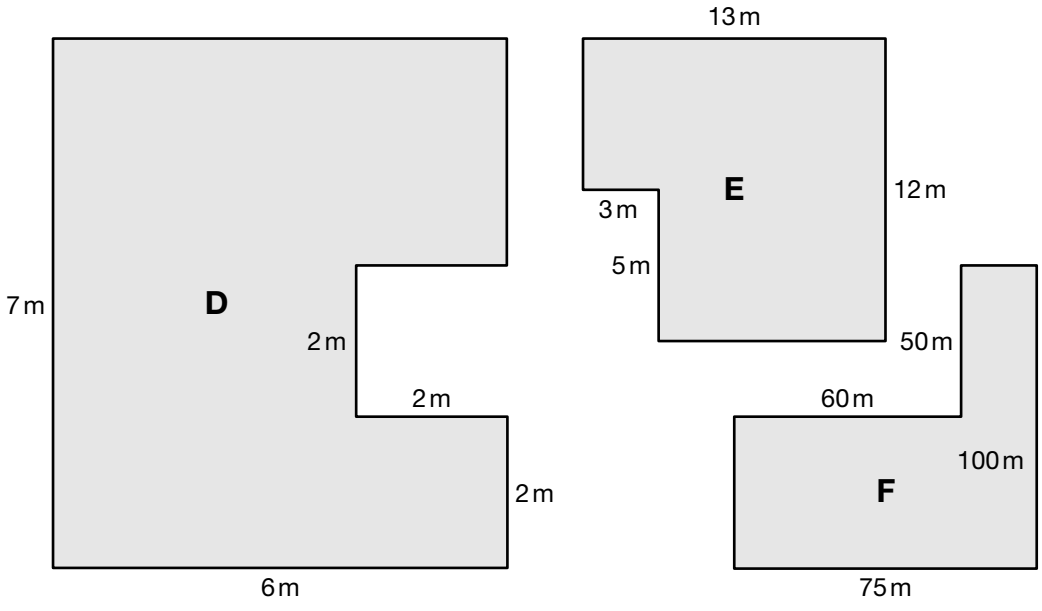
The perimeter is the total distance around a shape, starting and finishing at the same point. (It is the distance around the **edge**.)

Ⓐ Find the perimeter of each of these shapes in centimetres.



1 **A** _____ cm **2** **B** _____ cm **3** **C** _____ cm [3]

Find the perimeter of these shapes in metres. The diagrams are not drawn to scale.



4 **D** _____ m **5** **E** _____ m **6** **F** _____ m [3]

Helpful Hint

The area of a shape is the amount of space inside it.

We measure the area in square units.

One square centimetre is written 1 cm^2.

One square metre is written 1 m^2.

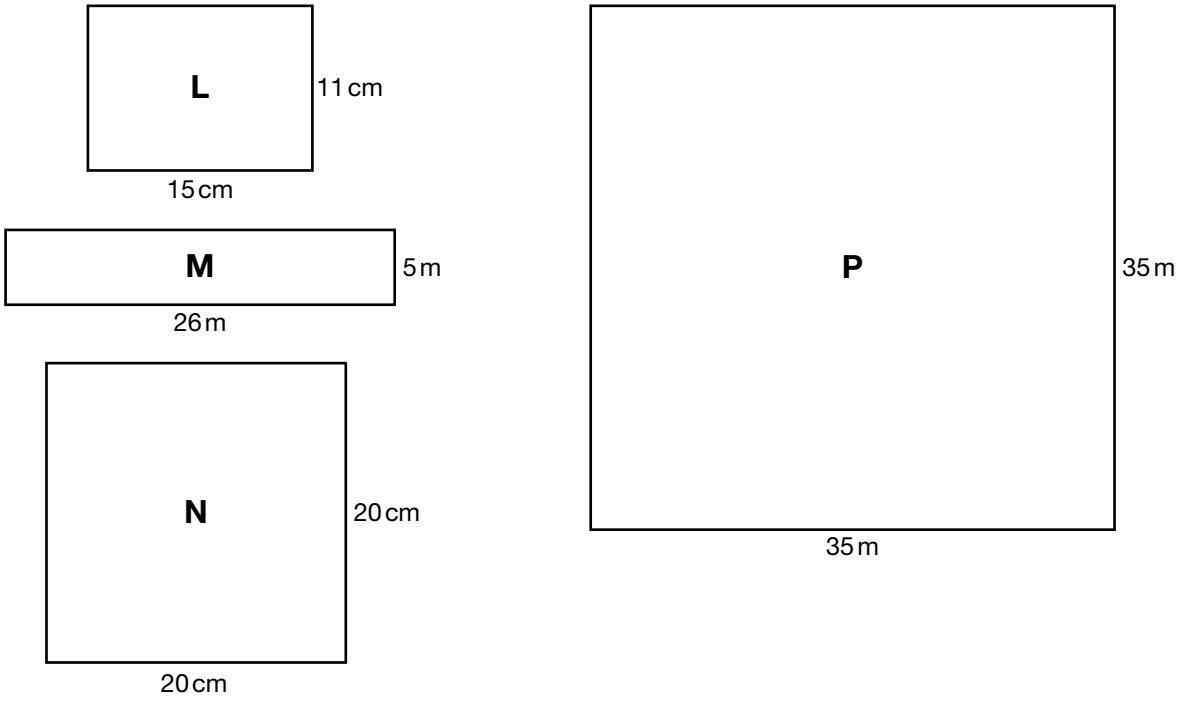
So the question, "What is the area of this shape in cm^2?" means "How many 1 cm^2 squares will fit inside this shape?"

To find the area of a square, multiply the length of one side by itself.

To find the area of a rectangle, multiply the length by the width.

(B) Use these diagrams to answer the questions that follow.

Diagrams not drawn to scale.



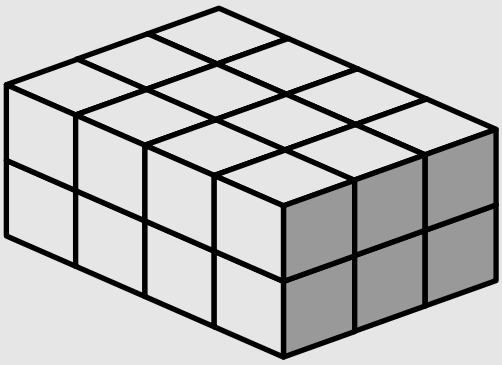
1 Find the area of shape **L** in cm^2. _____ cm^2 [1]

2 Find the area of shape **M** in m^2. _____ m^2 [1]

3 Find the area of shape **N** in cm^2. _____ cm^2 [1]

4 Find the area of shape **P** in m^2. _____ m^2 [1]

Helpful Hint



The space enclosed by a **3D** object is described as its **volume**.

Volume is measured in the number of cubes that can fill the space.

We often measure **volume** in cm^3. $1\,cm^3$ is a cube with sides of 1 cm.

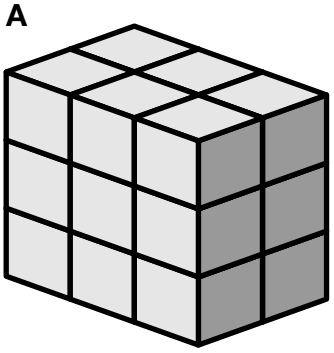
Example

The total **volume** of this block of $1\,cm^3$ cubes is $24\,cm^3$.

Count the cubes to check. Remember to count the cubes you can't see!

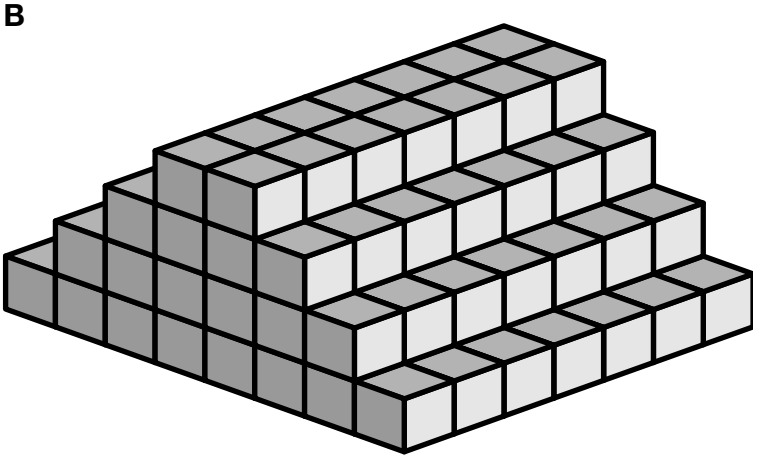
Ⓒ Find the **volume** of each of these constructions that are made from $1\,cm^3$ cubes.

1 A



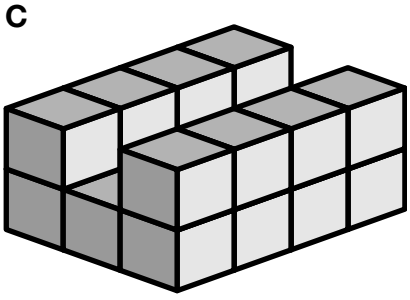
Shape **A** _____ cm^3 ☐ [1]

2 B



Shape **B** _____ cm^3 ☐ [1]

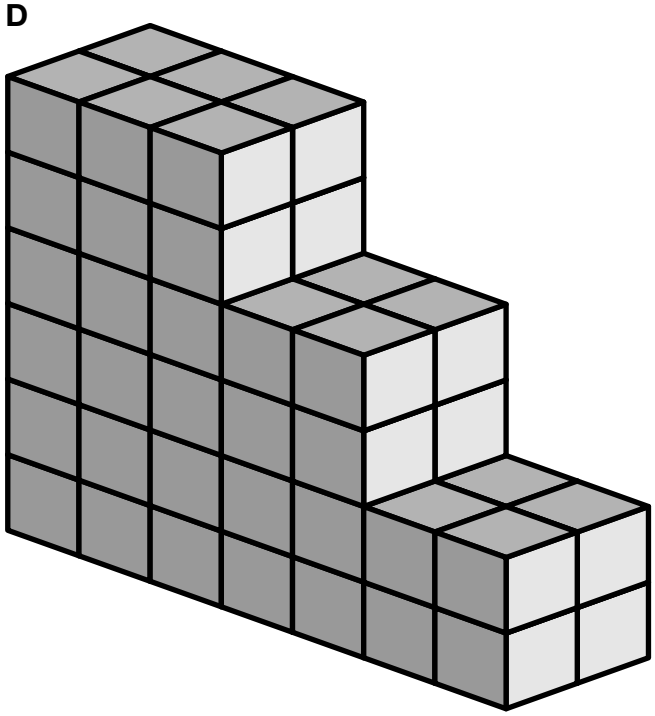
3 C



Shape **C** _____ cm^3 ☐ [1]

3

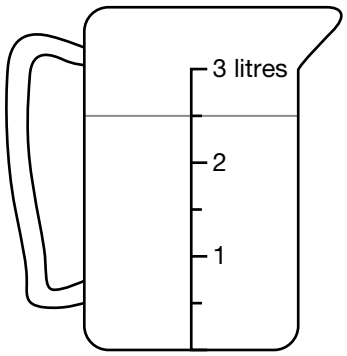
4 D



Shape **D** _____ cm^3 [1]

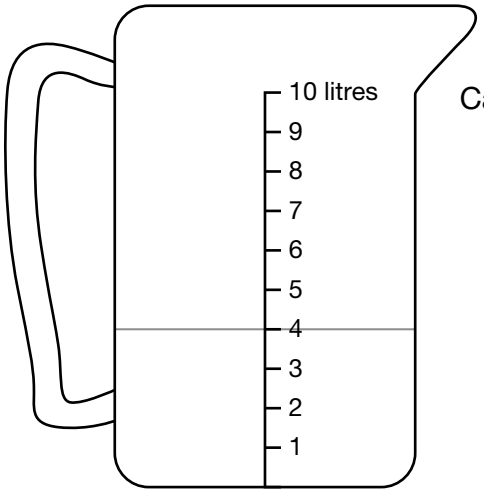
Answer these questions.

5 E



Find the **volume** of water in jug **E**. _____ litres [1]

6 F



Can you add 3.5 litres to jug **F**? Yes / No [1]

Unit 7

Ⓐ

1 28 cm

2 14 cm

3 12 cm

4 30 m

5 50 m

6 350 m

Ⓑ

1 15 × 11 = 165 cm^2

2 26 × 5 = 130 m^2

3 20 × 20 = 400 cm^2

4 35 × 35 = 1225 m^2

Ⓒ

1 3 × 2 × 3 = 18 cm^3

2 (2 + 4 + 6 + 8) × 7 × 1 = 20 × 7 × 1 = 140 cm^3

3 (3 × 4 × 1) + (1 × 4 × 1) + (1 × 4 × 1) = 12 + 4 + 4 = 20 cm^3

4 (7 × 2 × 2) + (5 × 2 × 2) + (3 × 2 × 2) = 15 × 2 × 2 = 60 cm^3

5 2.5 litres

6 4 litres + 3.5 litres = 7.5 litres. Yes, you can add 3.5 litres to the jug.