

TARGET To find the areas and perimeters of rectangles using the formulae.

The area of a shape is the amount of surface it covers. It is measured in squares, usually square metres (m²) or square centimetres (cm²).

The perimeter of a shape is the distance around its edges. It is a length and is measured in units of length such as metres and centimetres.

The area and perimeter of a rectangle can be found using these formulae:

Area = lw

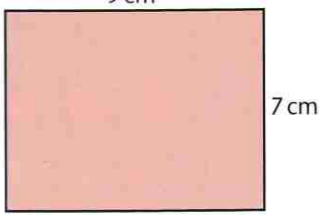
Perimeter = $2(l + w)$

(l = length, w = width)

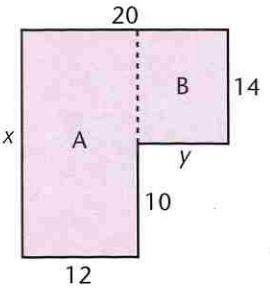
Example 1

Area
 = $(9 \times 7) \text{ cm}^2$
 = 63 cm^2

Perimeter
 = $2(9 + 7) \text{ cm}$
 = $2 \times 16 \text{ cm}$
 = 32 cm



Example 2



All lengths are in metres. Find:

- unknown lengths x and y
- area of hexagon
- perimeter of hexagon

$x = 24 \text{ m } (14 + 10)$
 $y = 8 \text{ m } (20 - 12)$

Area of A = $(24 \times 12) \text{ m}^2 = 288 \text{ m}^2$
 Area of B = $(14 \times 8) \text{ m}^2 = 112 \text{ m}^2$
 Area of hexagon = 400 m^2

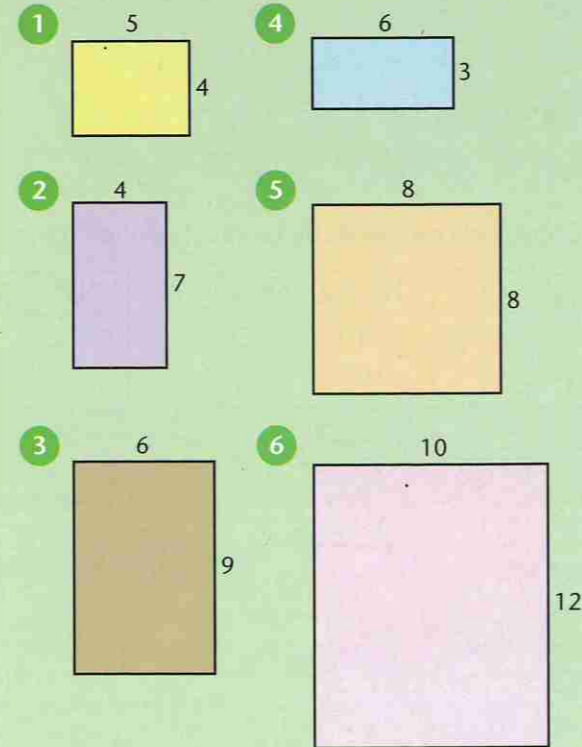
Perimeter of hexagon = 88 m
 $(24 + 20 + 14 + 8 + 10 + 12) \text{ m}$

A

For each of the following shapes find:

- a) the area b) the perimeter.

All lengths are in cm.



For each of the following shapes find:

- a) the area b) the perimeter.

- square sides 4 cm
- rectangle sides 7 cm 5 cm
- square sides 10 cm
- rectangle sides 8 cm 3 cm

Use squared paper.

- Draw a square with a perimeter of 28 cm. Work out the area.
- Draw two different rectangles each with an area of 28 cm^2 . Work out the perimeters.
- Draw two different rectangles each with a perimeter of 28 cm. Work out the areas.

B

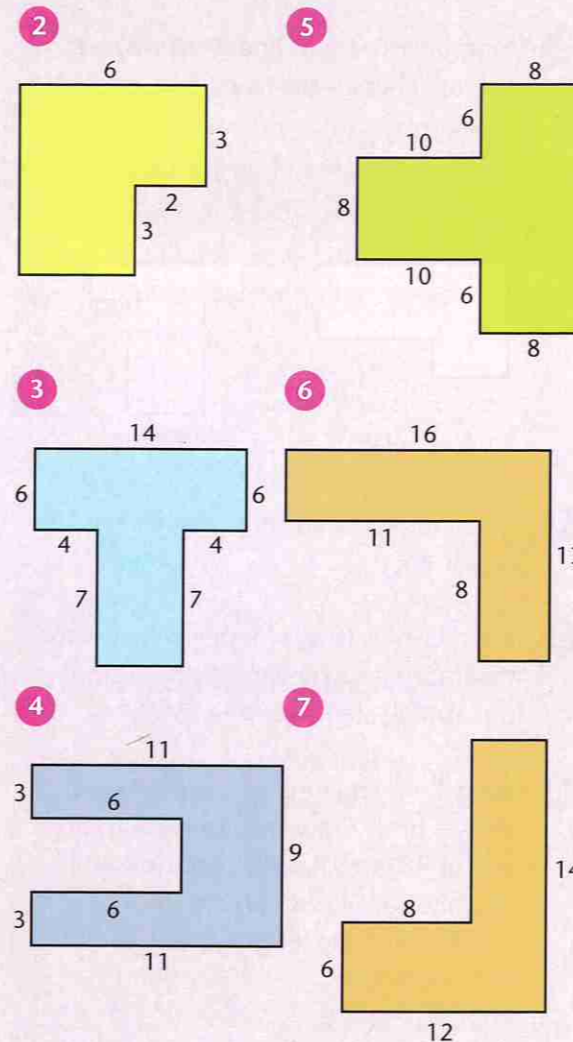
1 Copy and complete the table showing the measurements of rectangles.

Length	Width	Perimeter	Area
8 cm	5 cm		
7 cm			21 cm^2
	6 cm	32 cm	
9 cm		26 cm	
	10 m		200 m^2
12 m			24 m^2
	7 m	36 m	
	8 m		120 m^2

For each of the following shapes work out:

- a) the perimeter
 b) the area.

All lengths are in centimetres.

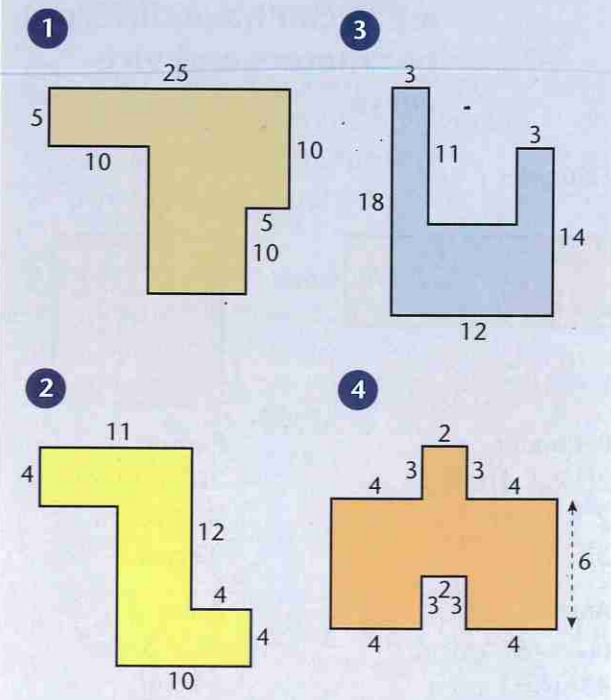


C

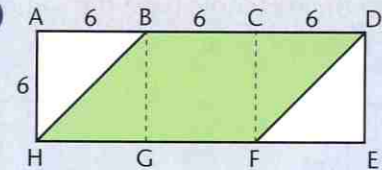
For each of the following shapes work out:

- a) the perimeter b) the area.

All lengths are in centimetres.



5



Look at the above diagram. Work out the area of:

- rectangle ADEH
- square ABGH
- triangle ABH
- parallelogram BDFH.

- A rectangular room is 7.6 m long and has a perimeter of 23.2 m.
 - What is the area of the room?
 - Square carpet tiles are 40 cm long. How many are needed to cover the floor of the room?
- A rectangular field is three times as long as it is wide. The fence around it is 240 m long. What is the area of the field?