



- 1 A rectangle has length 9 cm and width 4 cm.

- Work out the area of the rectangle.
- Work out the perimeter of the rectangle.

(2 marks)

Perimeter is the total distance around the boundary. Area counts the unit squares inside the shape, so its units are squared

$$\text{Area} = \text{length} \times \text{width} = 9 \times 4 = 36 \text{ cm}^2$$

$$\text{Perimeter} = 2 \times (9 + 4) = 2 \times 13 = 26 \text{ cm}$$

- 2 A rectangle has corners at the points (2, 1), (9, 1), (9, 3) and (2, 3). Each unit on the grid is 1 cm.

Work out the perimeter of the rectangle.

(2 marks)

$$\text{Length} = 9 - 2 = 7$$

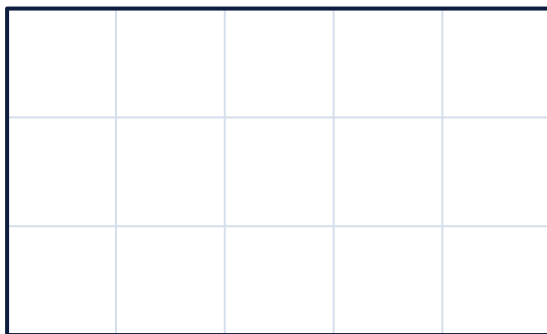
$$\text{width} = 3 - 1 = 2$$

$$7 + 2 + 7 + 2 = 18$$

$$18 \text{ cm}$$

- 3 The rectangle is drawn on a grid of centimetre squares.

Work out the perimeter of the rectangle.



(2 marks)

$$\text{Length} = 5 \text{ cm}, \text{width} = 3 \text{ cm}$$

$$5 + 3 + 5 + 3 = 16$$

$$16 \text{ cm}$$

- 4 Mia says, "A rectangle 7 cm by 5 cm has a perimeter of 35 cm."
Explain the mistake Mia has made and work out the correct perimeter.

(2 marks)

$7 \times 5 = 35$ is the area

perimeter = $7 + 5 + 7 + 5$

24 cm

- 5 An L-shape has six straight sides. Going round the shape, the sides are 10 cm, 4 cm, 4 cm, 3 cm, 6 cm and 7 cm.

Work out the perimeter of the L-shape.

(2 marks)

$10 + 4 = 14$

$14 + 4 + 3 = 21$

$21 + 6 + 7 = 34$

34 cm

- 6 Ben wants to work out the perimeter of a square with sides of length 6 cm.
Ben writes:

$\text{perimeter} = 6 \times 6 = 36 \text{ cm}$

Explain the mistake Ben has made.

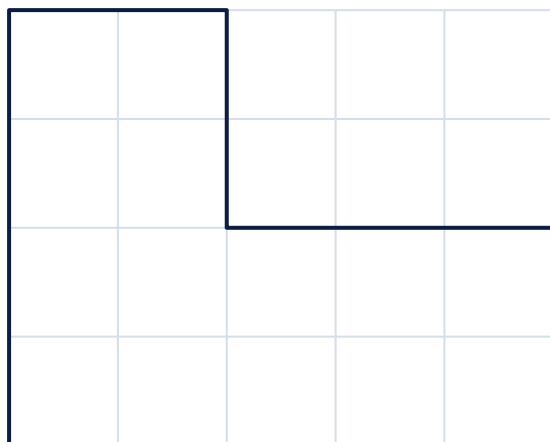
(2 marks)

Multiplying 6×6 gives the area of the square (in cm^2), not the perimeter

The perimeter is the total distance around the square

$4 \times 6 = 24 \text{ cm}$

- 7 The L-shape is drawn on a grid of centimetre squares.
Work out the perimeter of the L-shape.



(2 marks)

Go round the shape side by side

$$5 + 2 + 3 + 2 + 2 + 4$$

$$= 18$$

18 cm

- 8 Two identical rectangles, each 6 cm by 3 cm, are joined along their 3 cm sides to make one larger rectangle.

Work out the perimeter of the larger rectangle.

(2 marks)

$$\text{length} = 6 + 6 = 12$$

$$\text{width} = 3$$

$$12 + 3 + 12 + 3 = 30$$

30 cm

- 9 A rectangle has a perimeter of 38 cm. Its length is 12 cm.
Work out the width of the rectangle.

(2 marks)

$$38 \div 2 = 19 \text{ (length + width)}$$

$$19 - 12 = 7$$

7 cm

- 10 A square and an equilateral triangle have the same perimeter. The square has sides of length 9 cm. Work out the length of each side of the triangle.

(2 marks)

square: $4 \times 9 = 36$

triangle: $36 \div 3 = 12$

12 cm

- 11 Three identical squares, each with sides of length 4 cm, are joined edge to edge to make an L-shape. Work out the perimeter of the L-shape.

(2 marks)

count the outside edges: 8

$8 \times 4 = 32$

32 cm

12

An L-shape is made by removing a rectangle 3 cm by 2 cm from one corner of a rectangle 8 cm by 6 cm.

Work out the perimeter of the L-shape.

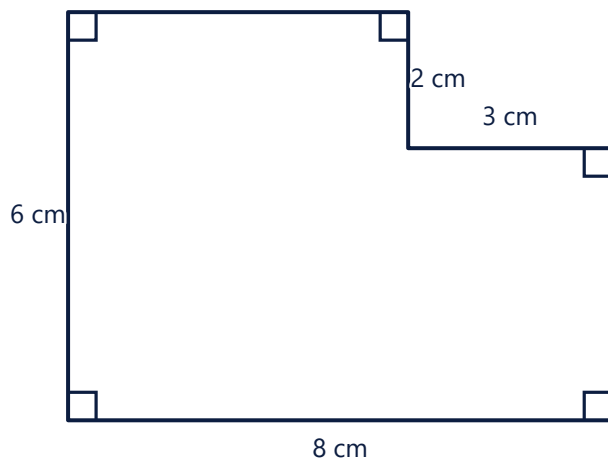


Diagram NOT accurately drawn

(3 marks)

The two cut edges of the removed corner are 3 cm and 2 cm long

The missing parts of the original sides are also 3 cm and 2 cm, so the total distance around the L-shape is the same as the perimeter of the full 8 cm by 6 cm rectangle

$$\text{Perimeter} = 8 + 6 + 3 + 2 + (8 - 3) + (6 - 2) = 8 + 6 + 3 + 2 + 5 + 4 = 28 \text{ cm}$$

Check

$$2 \times (8 + 6) = 28 \text{ cm}$$

28 cm

13

A rectangle is 12 cm by 8 cm. A square of side 3 cm is cut out of one corner.

Work out the perimeter of the new shape. Explain your answer.

(2 marks)

$$\text{original: } 12 + 8 + 12 + 8 = 40$$

cut removes 3 + 3, adds 3 + 3

40 cm

- 14 A rectangle is made from three identical squares placed side by side in a row.
The perimeter of the rectangle is 48 cm.
Work out the area of the rectangle.

(3 marks)

Let each square have side s cm. The rectangle is $3s$ cm long and s cm wide

$$\text{Perimeter} = 2 \times (3s + s) = 8s, \text{ so } 8s = 48 \text{ and } s = 6$$

The rectangle is 18 cm by 6 cm, so its area = $18 \times 6 = 108 \text{ cm}^2$

108 cm^2

- 15 Rectangle A has length 12 cm and width 5 cm.
Rectangle B has width 4 cm. The perimeter of rectangle B is equal to the perimeter of rectangle A .
Work out the area of rectangle B .

(4 marks)

$$\text{Perimeter of } A = 2 \times (12 + 5) = 34 \text{ cm}$$

For rectangle B

$$2 \times (\text{length} + 4) = 34, \text{ so } \text{length} + 4 = 17 \text{ and } \text{length} = 13 \text{ cm}$$

$$\text{Area of } B = 13 \times 4 = 52 \text{ cm}^2$$

52 cm^2