

Area and Perimeter

KS3 Maths · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Rectangle: length = 8 cm, width = 5 cm. Find the area and perimeter.

Step 1 · Area = length $\times$ width

$$\text{Area} = 8 \times 5 = 40 \text{ cm}^2$$

Step 2 · Perimeter = $2 \times (\text{length} + \text{width})$

$$\text{Perimeter} = 2 \times (8 + 5) = 2 \times 13 = 26 \text{ cm}$$

Answer: Area = 40 cm², Perimeter = 26 cm

Check: Check area: $8 \times 5 = 40$ ✓ Check perimeter: $8+5+8+5 = 26$ ✓

2. Now try one with the steps

Triangle: base = 10 cm, height = 6 cm. Find the area.

Step 1 · Area of triangle = $\frac{1}{2} \times \text{base} \times \text{height}$

Step 2 · Calculate

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Rectangle: l = 9 cm, w = 4 cm. Find the area. [1]

2. Rectangle: l = 7 cm, w = 3 cm. Find the perimeter. [1]

3. Square: side = 6 cm. Find the area. [1]

4. Triangle: base = 12 cm, height = 5 cm. Find the area. [2]

5. Rectangle: area = 48 cm^2 , length = 8 cm. Find width. [2]

6. Rectangle: perimeter = 30 cm, length = 9 cm. Find width. [3]

7. Triangle: base = 9 cm, height = 8 cm. Find the area. [1]

8. A square has a perimeter of 28 cm. How long is each side? [1]

9. A square has an area of 81 cm^2 . Find its perimeter. [2]

10. A triangle has an area of 24 cm^2 and a base of 8 cm. Find its perpendicular height. [2]

11. An L-shape is made by cutting a $4 \text{ cm} \times 3 \text{ cm}$ rectangle from the corner of a $10 \text{ cm} \times 6 \text{ cm}$ rectangle. Find its area. [2]

12. A bedroom floor is 4.5 m by 3.2 m. Find its area. [2]

13. Carpet costs £12 per m^2 . How much does it cost to carpet the 4.5 m by 3.2 m bedroom? [2]

14. Find the perimeter of the L-shape made by cutting a $4 \text{ cm} \times 3 \text{ cm}$ rectangle from the corner of a $10 \text{ cm} \times 6 \text{ cm}$ rectangle. [3]

15. A rectangle has a perimeter of 24 cm and an area of 32 cm². Find its length (the longer side). [3]

16. How many cm² are there in 3 m²? [2]

4. Before you hand it in

Perimeter = length × width

Area = $l \times w$ (covers the inside — units²). Perimeter = $2(l + w)$ (goes around the outside — units).

Area = $\frac{1}{2}$ base × height using the slant side instead of perpendicular height

The height must be perpendicular (at 90°) to the base. Never use the slant side in the formula.

Area = 40 cm (no ² sign)

Area is always measured in square units (cm², m², km²). Forgetting the ² loses a mark in exams.