

Y6 Area Perimeter

KS2 Y6 Maths · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Find all the rectangles with whole-number sides and an area of 12 cm^2 . Which has the smallest perimeter?

Step 1 · Factor pairs of 12

1×12 , 2×6 , 3×4

Step 2 · Perimeters: $2 \times (1 + 12)$, $2 \times (2 + 6)$, $2 \times (3 + 4)$

26 cm, 16 cm, 14 cm

Answer: $3 \text{ cm} \times 4 \text{ cm}$ has the smallest perimeter (14 cm)

Check: Same area, different perimeters ✓

2. Now try one with the steps

Find the rectangles with whole-number sides and a perimeter of 16 cm. Which has the largest area?

Step 1 · Length + width = 8

Step 2 · Areas

Answer:

3. Practice

Have a go at each one. There is space underneath to work it out.

1. A rectangle is 3 cm by 8 cm. Find its area and its perimeter.

2. A rectangle is 4 cm by 6 cm. Find its area and its perimeter.

3. Which has the larger perimeter: a $3 \text{ cm} \times 8 \text{ cm}$ rectangle or a $4 \text{ cm} \times 6 \text{ cm}$ rectangle?

4. List all the rectangles with whole-number sides and an area of 18 cm^2 .

5. What is the perimeter of a 1 cm × 18 cm rectangle?

6. A rectangle has a perimeter of 20 cm and a width of 3 cm. How long is it?

7. What is the area of the rectangle in question 6?

8. List all the rectangles with whole-number sides and a perimeter of 12 cm.

9. Which rectangle in question 8 has the largest area? What is it?

10. A rectangle has an area of 36 cm² and a perimeter of 26 cm. What are its side lengths?

11. A rectangle has an area of 30 cm² and a perimeter of 22 cm. What are its side lengths?

12. A square has sides of 6 cm. A rectangle is 9 cm by 4 cm. Do they have the same area? Compare their perimeters.

13. True or false: shapes with the same area always have the same perimeter.

14. What is the smallest possible perimeter of a rectangle with whole-number sides and an area of 16 cm²?

15. Sam has 24 m of fencing to make a rectangular pen. Which whole-number side lengths give the biggest area?

4. Before you hand it in

Thinking two rectangles with the same area must have the same perimeter.

Area counts the squares inside; perimeter measures the distance around. 6×4 and 12×2 both have area 24 cm^2 but perimeters 20 cm and 28 cm.

Finding the perimeter of a 3×8 rectangle as $3 + 8 = 11 \text{ cm}$.

A rectangle has four sides: $3 + 8 + 3 + 8 = 22 \text{ cm}$, or $2 \times (3 + 8)$.

Writing perimeter in cm^2 or area in cm.

Perimeter is a length (cm). Area is measured in square units (cm^2).