

Rectangle Detective

Find missing sides, areas, and perimeters.

GRADE 4 • MA.4.GR.2.1

MA.4.GR.2.1 "Solve perimeter and area mathematical and real-world problems, including problems with unknown sides, for rectangles with whole-number side lengths."

NAME _____

DATE _____

PERIMETER AND AREA

Perimeter is the distance around a rectangle. Add all four sides, or use $2 \times (\text{length} + \text{width})$. Area is the space inside a rectangle, so multiply length $\times$ width.

WORKED EXAMPLE

A rectangle is 15 cm long and 13 cm wide. Find its perimeter and area.

1. Add the length and width: $15 + 13 = 28$.
2. Multiply by 2 for the perimeter: $2 \times 28 = 56$.
3. Multiply length by width for the area: $15 \times 13 = 195$.

Answer: Perimeter = 56 cm; area = 195 square cm.

PRACTICE 6 problems

- 1** A rectangle is 8 cm long and 5 cm wide. What is its perimeter?

ANSWER _____

- 2** A rectangle is 9 m long and 6 m wide. What is its area?

ANSWER _____

- 3** A rectangle has a perimeter of 30 m. Its width is 4 m. What is its length?

ANSWER _____

- 4** A rectangle has an area of 72 square inches. Its length is 12 inches. What is its width?

ANSWER _____

- 5** A rectangle has a perimeter of 34 feet. Its length is 10 feet. What is its width?

ANSWER _____

- 6** A rectangle is 14 yards long and 3 yards wide. Find its area and perimeter.

ANSWER _____

APPLY IT Show your work

- 1** Maya is making a rectangular poster for the robotics club. The poster is 16 inches long and 9 inches wide. How many inches of ribbon does she need to go all the way around the edge?

WORK SPACE

ANSWER _____

- 2** A rectangular game zone at a school fair covers 84 square feet. It is 12 feet long. What is its width, and what is its perimeter?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A rectangle has a perimeter of 44 cm and a width of 8 cm. What are its length and area? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A rectangle is 8 cm long and 5 cm wide. What is its perimeter?	26 cm
2	A rectangle is 9 m long and 6 m wide. What is its area?	54 square m
3	A rectangle has a perimeter of 30 m. Its width is 4 m. What is its length?	11 m
4	A rectangle has an area of 72 square inches. Its length is 12 inches. What is its width?	6 inches
5	A rectangle has a perimeter of 34 feet. Its length is 10 feet. What is its width?	7 feet
6	A rectangle is 14 yards long and 3 yards wide. Find its area and perimeter.	Area = 42 square yards; perimeter = 34 yards

PART 2 • APPLY IT

- 50 inches of ribbon** Find the perimeter: $2 \times (16 + 9) = 2 \times 25 = 50$ inches.
- Width = 7 feet; perimeter = 38 feet** Divide 84 by 12 to find a width of 7 feet. Then find the perimeter: $2 \times (12 + 7) = 38$ feet.

CHALLENGE

The length is 14 cm, and the area is 112 square cm. Half of 44 is 22, so the length is $22 - 8 = 14$ cm. Then $14 \times 8 = 112$ square cm.

Accept correct answers with equivalent unit wording, such as cm squared for square cm. For missing-side problems, accept any correct method that uses the perimeter or area relationship.