

# Grade 4 - Area and Perimeter of Rectangles - Lesson

Common Core 4.MD.A.3 · maths-pdf.fr/en/

**Area is the number of unit squares that cover a flat shape, and perimeter is the distance around it. For a rectangle, area = length  $\times$  width and perimeter =  $2 \times$  length +  $2 \times$  width. A rectangle 8 feet long and 3 feet wide has an area of 24 square feet and a perimeter of 22 feet.**

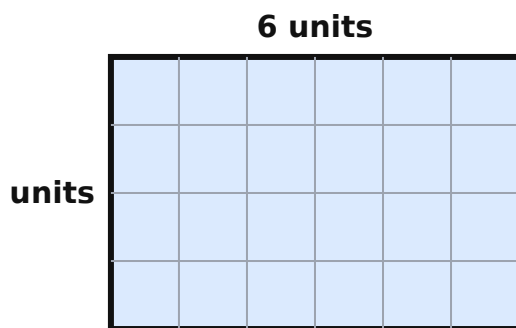
**Grade 4** · Common Core State Standards: **4.MD.A.3**

## Key facts

- Area of a rectangle = length  $\times$  width, measured in square units.
- Perimeter of a rectangle =  $2 \times$  length +  $2 \times$  width, measured in plain units.
- A square is a rectangle whose four sides are equal.
- If you know the area and one side, divide to find the other side.
- Area tells how much to cover; perimeter tells how far around.

## What is the area of a rectangle?

Area tells how much flat space a shape covers. We count unit squares, like floor tiles. This rectangle has 6 squares in every row and 4 rows, so it has 24 squares.



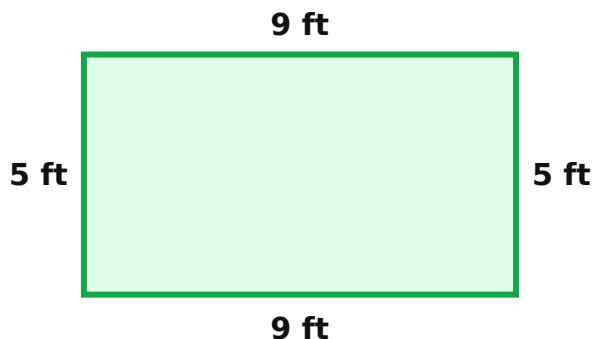
6 columns and 4 rows of unit squares.

## Area of a rectangle

$A = l \times w$  where  $l$  is the length and  $w$  is the width. Area is measured in **square units**, such as square feet (sq ft) or square inches (sq in).

## What is the perimeter of a rectangle?

Perimeter is the distance around the outside edge. Imagine walking along a fence. A rectangle has two long sides and two short sides, so add them all.



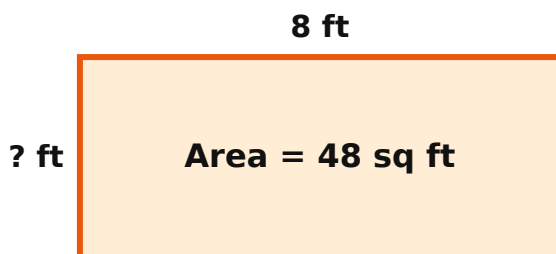
Walk around:  $9 + 5 + 9 + 5$ .

## Perimeter of a rectangle

$P = 2 \times l + 2 \times w$  or  $P = 2 \times (l + w)$ . Perimeter is measured in plain units, such as feet or inches.

## How do you find a missing side of a rectangle?

Area is length times width, so use division to undo it. If a rectangle has an area of 48 square feet and a length of 8 feet, then the width is  $48 \div 8 = 6$  feet.



The area and one side are known.

## How do you solve an area or perimeter word problem?

First decide what the question needs. A fence, a border, or a ribbon around something means perimeter. Carpet, paint, or grass covering something means area.

**Example.** Maya's garden is 9 ft long and 5 ft wide. How much fence goes around it, and how

much soil covers it?

1. Fence is around the edge, so find the perimeter:  $2 \times 9 + 2 \times 5 = 18 + 10 = 28$  ft.
2. Soil covers the garden, so find the area:  $9 \times 5 = 45$  square feet.
3. Write the units: **28 ft of fence** and **45 sq ft of soil**.

|                                 |                                 |
|---------------------------------|---------------------------------|
| <b>Around = perimeter (add)</b> | <b>Covers = area (multiply)</b> |
|---------------------------------|---------------------------------|

Pick the tool that fits the question.

## Questions about area and perimeter of rectangles

### What is the difference between area and perimeter?

Perimeter is the distance around a shape, so you add the side lengths. Area is the amount of space inside a shape, so you multiply length by width.

### Why is area measured in square units?

Area counts squares that fit inside a shape. A square foot is a square that is 1 foot on each side, so the area of a floor is written in square feet.

### How do you find the perimeter of a square?

A square has four equal sides, so multiply one side by 4. A square with sides of 6 inches has a perimeter of  $4 \times 6 = 24$  inches.

### How do you find a missing width when you know the perimeter?

Subtract the two known lengths from the perimeter, then divide by 2. If  $P = 30$  in and the length is 9 in, then  $30 - 18 = 12$  and  $12 \div 2 = 6$  in.

### Can two rectangles have the same perimeter but different areas?

Yes. A 7 ft by 3 ft rectangle and a 5 ft by 5 ft rectangle both have a perimeter of 20 ft, but their areas are 21 sq ft and 25 sq ft.