

# Grade 3 · Perimeter · Lesson

Common Core 3.MD.D.8 · mathovore.fr

Perimeter is the distance around the outside of a shape. To find the perimeter of a polygon, add the lengths of all its sides. A triangle with sides 5 cm, 6 cm and 7 cm has a perimeter of 18 cm. Perimeter is measured in units of length, not square units.

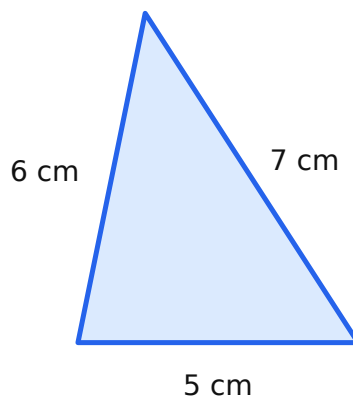
## Grade 3 Common Core: 3.MD.D.8

### Key facts:

- Perimeter is the total distance around a polygon.
- Add all the side lengths to find the perimeter.
- A rectangle's perimeter is length + width + length + width.
- For an unknown side, subtract the known sides from the perimeter.
- Rectangles with the same perimeter can have different areas.

## What is perimeter?

Perimeter is the distance around the outside of a shape. Imagine walking along every side of a park and stopping where you started. The length of that walk is the perimeter. To find it, add the lengths of all the sides.



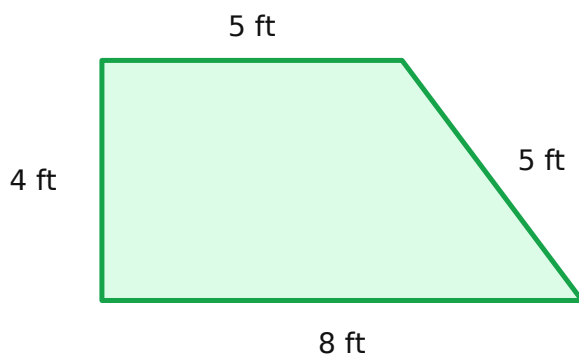
Perimeter of a triangle:  $5 + 6 + 7 = 18$  cm.

### Perimeter

The **perimeter** of a polygon is the sum of the lengths of its sides. It is measured in units of length, such as cm, inches, feet or meters, not in square units.

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

A **polygon** is a closed shape with straight sides. Add every side once. A trapezoid with sides 5 ft, 5 ft, 8 ft and 4 ft has a perimeter of  $5+5+8+4=22$  ft.

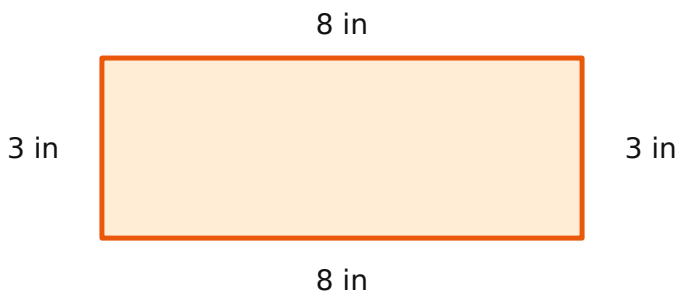


Perimeter of a trapezoid:  $5 + 5 + 8 + 4 = 22$  ft.

| Shape           | Side lengths     | Perimeter |
|-----------------|------------------|-----------|
| Triangle        | 5, 6, 7 cm       | 18 cm     |
| Quadrilateral   | 5, 5, 8, 4 ft    | 22 ft     |
| Regular hexagon | six sides of 4 m | 24 m      |

## Is there a shortcut for rectangles?

A rectangle has two long sides and two short sides that are equal. A rectangle 8 inches long and 3 inches wide has a perimeter of  $8+3+8+3=22$  inches. You can also add the length and width and double it:  $2 \times (8+3) = 22$ .



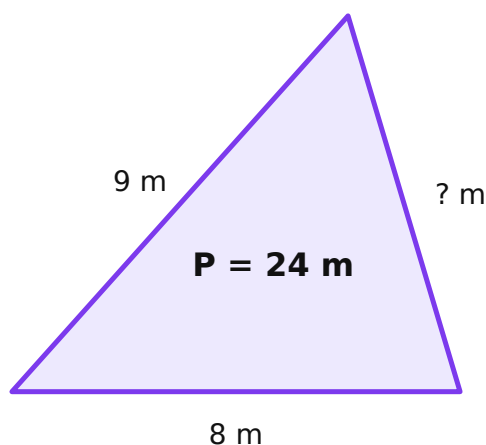
Perimeter of a rectangle:  $8 + 3 + 8 + 3 = 22$  inches.

## How do you find an unknown side length?

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When you know the perimeter and all sides but one, work backward.

1. Add the side lengths you know:  $8+9=17$ .
2. Subtract that sum from the perimeter:  $24-17=7$ .
3. Check by adding all sides:  $8+9+7=24$ .

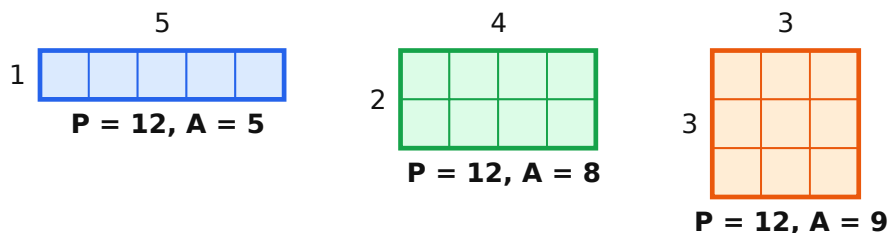


The missing side of the triangle is 7 m.

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

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Yes. All three rectangles below have a perimeter of 12 units, but their areas are 5, 8 and 9 square units. Shapes that are closer to a square cover more area with the same distance around.



Same perimeter, different areas.

## Perimeter: frequently asked questions

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

Perimeter is the distance around a shape and is measured in units such as feet. Area is the amount of flat space inside a shape and is measured in square units such as square feet.

### **How do you find the perimeter of a rectangle?**

Add the length and the width, then double the result, or add all four sides. A rectangle 9 feet long and 4 feet wide has a perimeter of  $9 + 4 + 9 + 4 = 26$  feet.

### **How do you find a missing side if you know the perimeter?**

Add the sides you know and subtract that sum from the perimeter. If a triangle has a perimeter of 30 inches and two sides of 11 and 9 inches, the third side is  $30 - 20 = 10$  inches.

### **What is the perimeter of a square?**

A square has four equal sides, so add the side length four times or multiply it by 4. A square with sides of 6 meters has a perimeter of 24 meters.

### **Can two shapes have the same perimeter but different areas?**

Yes. A 5-by-1 rectangle and a 3-by-3 square both have a perimeter of 12 units, but their areas are 5 and 9 square units.