



# Lines of symmetry in 2D shapes

A line of symmetry is a fold line: fold the shape along it and the two halves match exactly. Some shapes have none, some have several, and turning a shape round never changes how many it has.

## How many lines of symmetry?

| Square    | Rectangle                                          | Equilateral | Isosceles                                | Parallelogram                                       | Circle                  |
|-----------|----------------------------------------------------|-------------|------------------------------------------|-----------------------------------------------------|-------------------------|
|           |                                                    |             |                                          |                                                     |                         |
| • 4 lines | • 2 lines (a square is a special rectangle with 4) | • 3 lines   | • 1 line (an equilateral triangle has 3) | • 0 lines (no right angles, unequal adjacent sides) | • infinitely many lines |

### Worked example

**Does a rectangle have a line of symmetry along its diagonal?**

Imagine folding the rectangle corner to corner. The two triangles you get are the same size, but they do not lie on top of each other: one sticks out each side.

So the diagonal is not a line of symmetry. A rectangle's two lines of symmetry run through the middles of its sides. Only a square also has diagonal ones.

### The common mistake

**"A rectangle has four lines of symmetry, like a square."**

A rectangle that is not a square has only two. The diagonals look like they might work, but fold along one and the halves do not match. A square is a special rectangle: all four sides are equal, so the diagonal folds match too and it has four.

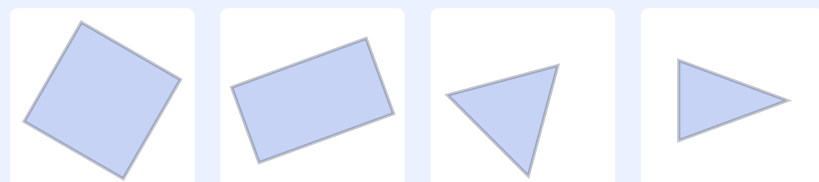
## Test yourself

- ☐ 1 How many lines of symmetry does a square have?
- ☐ 2 How many does this block capital A have?
- ☐ 3 How many does a parallelogram have?

A

### Draw every line of symmetry

The shapes are turned round on purpose: turning a shape never changes how many lines it has.



Next topic

Completing a symmetric figure

[thelearnden.com/year-4/maths/use-symmetry/](https://thelearnden.com/year-4/maths/use-symmetry/)

Answers: 1. Four. 2. One, straight down the middle. 3. None, if it has no right angles and unequal adjacent sides.