

# Rotational Symmetry

Chapter 9: Symmetry · Topic 2

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## Key Concept

A square has rotational symmetry of order 4, since rotating it by  $90^\circ$ ,  $180^\circ$ ,  $270^\circ$ , and  $360^\circ$  (back to start) each produces an identical-looking shape. An equilateral triangle has rotational symmetry of order 3 (matching every  $120^\circ$ ), while a shape with no rotational symmetry (other than the trivial full  $360^\circ$  turn) is said to have rotational symmetry of order 1. Understanding rotational symmetry, alongside line symmetry, gives a complete picture of a shape's overall symmetrical properties.

## Quick Revision Notes

- Rotational symmetry: a shape looks the same after rotating less than a full  $360^\circ$  turn.
- The order of rotational symmetry counts how many matching positions occur in one full rotation.
- A square has rotational symmetry of order 4 (matches every  $90^\circ$ ).
- An equilateral triangle has rotational symmetry of order 3 (matches every  $120^\circ$ ).

## Practice Questions

- 1 Identify the order of rotational symmetry of an equilateral triangle.
- 2 Determine the order of rotational symmetry of a regular hexagon.
- 3 Explain the difference between line symmetry and rotational symmetry.