

CLASS 6

MATHS

EXTRA QUESTIONS

Class 6 Maths Chapter 9 Symmetry – Extra Questions with Answers

Extra practice questions for Class 6 Maths Chapter 9 (Symmetry), beyond what's in the textbook, to test deeper understanding of line symmetry, rotational symmetry, and their combination.

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Very Short Answer Questions (1 mark)

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Extra practice questions for Class 6 Maths Chapter 9 (Symmetry), beyond what's in the textbook, to test deeper understanding of line symmetry, rotational symmetry, and their combination.

Very Short Answer Questions (1 mark)

Q1. How many lines of symmetry does a regular hexagon have?

Ans: 6.

Q2. What is the order of rotational symmetry of an equilateral triangle?

Ans: 3 (angle of symmetry = 120°).

Q3. Name a quadrilateral that has rotational symmetry but no line of symmetry.

Ans: A parallelogram that is neither a rectangle nor a rhombus — it has 180° rotational symmetry (order 2) but no line of symmetry.

Q4. What is the smallest angle of symmetry possible for a figure whose order of rotational symmetry is 5?

Ans: $360^\circ \div 5 = 72^\circ$.

Q5. Does a scalene triangle have any line of symmetry?

Ans: No, since all three sides and angles are different, no fold line can create matching halves.

Short Answer Questions (2–3 marks)

Q6. A rhombus and a square both have 4 equal sides. Do they have the same number of lines of symmetry? Explain.

Ans: No. A square has 4 lines of symmetry (2 through opposite sides' midpoints, plus 2 diagonals), but a non-square rhombus has only 2 lines of symmetry (its two diagonals) — its side-to-side folds do not produce matching halves because its angles are not all equal.

Q7. Explain why 100° cannot be the smallest angle of rotational symmetry of any figure.

Ans: The smallest angle of symmetry must divide 360° exactly (be a whole-number factor of 360). Since $360 \div 100 = 3.6$, which is not a whole number, 100° cannot be a valid smallest angle of symmetry.

Q8. A figure has angles of symmetry at 72° , 144° , 216° , 288° , and 360° . What is its order of rotational symmetry, and what regular polygon is it likely to resemble?

Ans: The order is 5 (five angles of symmetry), matching a regular pentagon, which also has 5 lines of symmetry.

Q9. Give one real-life example each of an object with (a) only line symmetry, (b) only rotational symmetry, (c) both.

Ans: (a) The letter "A" — one vertical line of symmetry, no rotational symmetry. (b) A pinwheel with curved, slanted blades — rotational symmetry but no line of symmetry. (c) A regular hexagon-shaped floor tile — both line symmetry (6 lines) and rotational symmetry (order 6).

Higher-Order Thinking / Application Questions

Q10. The Ashoka Chakra has 24 spokes. If a similar wheel design had 36 equally spaced spokes instead, what would be its smallest angle of symmetry and how many lines of symmetry would it have?

Ans: Smallest angle of symmetry = $360^\circ \div 36 = 10^\circ$. Since 36 is even, the spokes pair up across the

centre, giving $36 \div 2 = 18$ lines of symmetry.

Q11. A student says, “Since a rectangle has 2 lines of symmetry and a square has 4, a square is ‘more symmetric.’” Do you agree? Explain using rotational symmetry as well.

Ans: Yes, a square is more symmetric than a general rectangle in both respects: a square has 4 lines of symmetry versus a rectangle’s 2, and a square has rotational symmetry of order 4 (angles of symmetry at 90° , 180° , 270° , 360°) while a non-square rectangle only has order 2 (angles of symmetry at 180° , 360°).

Q12. Sketch (in your own notebook) a quadrilateral that has rotational symmetry of order 2 but no line of symmetry, and explain your reasoning.

Ans: A “Z”-shaped or slanted parallelogram (not a rectangle or rhombus) works: rotating it by 180° about its centre maps it onto itself (order 2 rotational symmetry), but no straight fold line produces two matching mirror halves, since its opposite sides are parallel but not positioned symmetrically about any single line.

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#)

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