

Grade 4 Math Worksheet: **Symmetry & Reflections** : Difficulty Level - Advance

Name: _____

Date: _____

Instructions: Carefully solve each problem. Use a ruler for drawing lines and take your time to ensure accuracy.

Part 1: Advanced Symmetry Analysis

1. Identify All Lines of Symmetry

Draw and label all lines of symmetry on the following shapes:

- Regular octagon
- Right trapezoid

2. Shape Analysis

Which of these shapes are symmetrical? Write **Symmetrical** or **Not Symmetrical** next to each:

- Scalene triangle: _____
 - Rhombus: _____
 - Circle: _____
 - Arrowhead: _____
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Part 2: Complex Reflections

3. Reflect the Shapes

Reflect the shapes across the given vertical and horizontal lines:

[Two shapes (e.g., a heart and a crescent moon) with vertical and horizontal mirror lines]

4. Double Reflection

Draw a shape (e.g., a triangle or house) and reflect it across two intersecting lines (one vertical and one horizontal). Label each reflection step.

Part 3: Symmetry in Alphabets and Numbers

5. **Symmetrical and Non-Symmetrical Letters**

Circle the letters that have symmetry (vertical or horizontal):

A, B, C, D, E, H, I, K, M, N, O, R, T, U, V, W, X, Y, Z

6. **Challenge: Symmetrical Word Creation**

Create a word using only letters that have vertical symmetry. Write your word here:

7. **Number Symmetry**

Write whether each number has vertical symmetry, horizontal symmetry, or none:

- 0: _____
- 8: _____
- 1: _____
- 5: _____

Part 4: Real-Life Symmetry and Reflections

8. **Identify Symmetry in Objects**

For each object below, draw it and show the line(s) of symmetry:

- A leaf
- A butterfly
- A clock face

9. **Reflection in Nature**

Write a short explanation about how reflections are seen in nature (e.g., in water or animal markings):

Explanation: _____

Part 5: Symmetry Puzzles and Creative Drawing

10. **Find the Missing Half**

Complete the right side of the given complex shape to make it symmetrical.

! [Half of a geometric pattern with intricate details]

11. **Design a Complex Symmetrical Pattern**

Create a unique, complex symmetrical pattern in the space below. Make sure it has at least two lines of symmetry (vertical and horizontal).

[Large box with vertical and horizontal guidelines]

12. **Brain Teaser**

Which of these statements is true? Circle the correct answer:

- A circle has an infinite number of symmetry lines.
- A rectangle has more lines of symmetry than a square.

- A hexagon has fewer lines of symmetry than a triangle.

Excellent work! Review your answers and show your symmetrical designs to your classmates or teacher.

— BE CHAMPION—