

Fold and Match

Use a fold test to find matching halves.

CCSS.Math.Content.4.G.A.3 "Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry."

NAME _____

DATE _____

HAS A LINE OF SYMMETRY

You can fold the figure on at least one straight line, and both sides match exactly.

A square matches when folded through its center from top to bottom.

HAS NO LINE OF SYMMETRY

No straight fold line makes both sides match exactly.

A shape made of four equal squares in an L arrangement has no line of symmetry.

1 SORT _____ 8 items

For each figure, circle MATCHES or NO MATCH, then choose two numbered figures and explain which fold test showed your choice.

1. A regular pentagon

MATCHES

NO MATCH

2. An isosceles triangle that is not equilateral

MATCHES

NO MATCH

3. A scalene triangle

MATCHES

NO MATCH

4. A circle

MATCHES

NO MATCH

5. A rectangle that is not a square

MATCHES

NO MATCH

6. A regular hexagon

MATCHES

NO MATCH

7. A parallelogram that is not a rectangle or a rhombus

MATCHES

NO MATCH

8. A trapezoid with four different side lengths

MATCHES

NO MATCH

2 PROVE IT Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ HOW I KNEW _____

ITEM # _____ HOW I KNEW _____

3 MAKE YOUR OWN One of each

Write one new figure that MATCHES and one new figure that is NO MATCH.

MATCHES _____

NO MATCH _____

CHALLENGE

Draw a figure with exactly two lines of symmetry, then draw both lines.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A regular pentagon	MATCHES	A regular pentagon has 5 lines of symmetry.
2	An isosceles triangle that is not equilateral	MATCHES	It has 1 line of symmetry from the top vertex to the midpoint of the base.
3	A scalene triangle	NO MATCH	Its sides and angles are all different, so no fold makes matching halves.
4	A circle	MATCHES	Every line through the center is a line of symmetry.
5	A rectangle that is not a square	MATCHES	It has 2 lines of symmetry, one vertical and one horizontal through the center.
6	A regular hexagon	MATCHES	A regular hexagon has 6 lines of symmetry.
7	A parallelogram that is not a rectangle or a rhombus	NO MATCH	A general parallelogram has no reflection line that makes matching halves.
8	A trapezoid with four different side lengths	NO MATCH	With all four side lengths different, no fold line can make matching halves.

PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **MATCHES:** A regular octagon has lines of symmetry.
- **NO MATCH:** A four-sided shape with four different side lengths has no line of symmetry.

Challenge: Draw a noncircular oval with one vertical line and one horizontal line through its center.

Accept any correct explanation that uses a fold and matching-halves idea for Part 2. For Part 3, check that each student example fits the selected category.