Fold and Find

Sort figures by whether a fold can make matching halves.

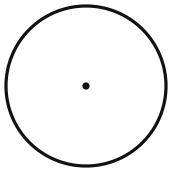
2.MG.3.a "Explore a figure using a variety of tools (e.g., paper folding, geoboards, drawings) to show and justify a line of symmetry, if one exists."

NAME _____ DATE _____

HAS MATCHING HALVES

If you can fold a figure on a line and both halves match exactly, it belongs in MATCHES. The fold line is a line of symmetry.

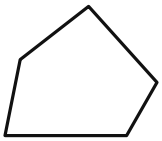
Example: A circle has matching halves when folded on many different lines through its center.



NO MATCHING HALVES

If no fold line makes both halves match exactly, it belongs in NO MATCH. Turning the figure does not make a fold line appear.

Example: This uneven five-sided figure has no fold line that makes matching halves.



1 SORT

8 items

Circle MATCHES or NO MATCH for each figure, then choose two figures and tell how folding shows your choice.

1.

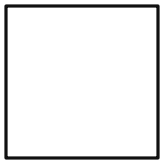


Figure 1

MATCHES **NO MATCH**

2.

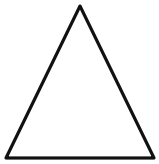


Figure 2

MATCHES **NO MATCH**

3.

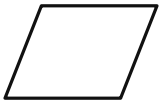


Figure 3

MATCHES **NO MATCH**

4.



Figure 4

MATCHES **NO MATCH**

5.

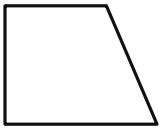


Figure 5

MATCHES **NO MATCH**

6.

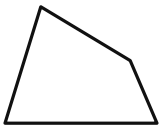


Figure 6

MATCHES **NO MATCH**

7.

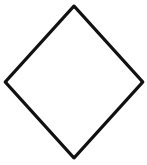


Figure 7

MATCHES **NO MATCH**

8.

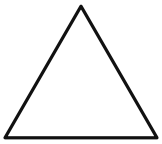


Figure 8

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

Draw one new figure for MATCHES and one new figure for NO MATCH.

MATCHES

NO MATCH

CHALLENGE

Draw a figure with exactly 2 lines of symmetry, and draw both lines.

ANSWER KEY

Fold and Find

GRADE 2 · 2.MG.3.a

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	**MATCHES**	A square has fold lines that make two matching halves.
2	Figure 2 (isosceles)	**MATCHES**	An isosceles triangle has one fold line from the top vertex to the middle of its base.
3	Figure 3 (parallelogram)	**NO MATCH**	THIS pictured parallelogram has unequal adjacent sides and no right angles, so it is neither a rectangle nor a rhombus and has no fold line. Rhombi are parallelograms with diagonal fold lines.
4	Figure 4 (rectangle)	**MATCHES**	A rectangle has vertical and horizontal fold lines through its center.
5	Figure 5 (right_trapezoid)	**NO MATCH**	A right trapezoid has unequal sides arranged so no fold line makes matching halves.
6	Figure 6 (polygon)	**NO MATCH**	This uneven four-sided figure has no fold line that makes matching halves.
7	Figure 7 (rhombus)	**MATCHES**	A rhombus has fold lines along its diagonals.
8	Figure 8 (equilateral)	**MATCHES**	An equilateral triangle has three fold lines, one from each vertex to the opposite side.

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 semicircle with a vertical fold line.
- **NO MATCH**: A scalene triangle.

Challenge: A non-square rectangle with one vertical line and one horizontal line through its center.

Sort key: 1 MATCHES, 2 MATCHES, 3 NO MATCH, 4 MATCHES, 5 NO MATCH, 6 NO MATCH, 7 MATCHES, 8 MATCHES. For the proof section, accept a correct explanation that names a fold line and says whether the two folded halves match exactly.