

Symmetry Fold Sort

Sort figures by whether a fold line makes matching halves.

4.6.B "identify and draw one or more lines of symmetry, if they exist, for a two-dimensional figure;"

NAME _____

DATE _____

HAS A SYMMETRY LINE

A figure has symmetry if you can fold it along a line and the two halves match exactly. Some figures have more than one symmetry line.

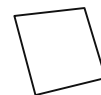
A semicircle has one symmetry line.



HAS NO SYMMETRY LINE

A figure has no symmetry line if no fold line can make two matching halves. The sides and corners will not line up.

This uneven quadrilateral has no symmetry line.



1 SORT

8 items

Circle SYMMETRY or NO LINES for each figure, then choose two figures and explain which fold line works or why no fold line would make matching halves.

1.



Figure 1

SYMMETRY

NO LINES

2.



Figure 2

SYMMETRY

NO LINES

3.

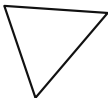


Figure 3

SYMMETRY

NO LINES

4.



Figure 4

SYMMETRY

NO LINES

5.



Figure 5

SYMMETRY

NO LINES

6.

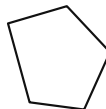


Figure 6

SYMMETRY

NO LINES

7.



Figure 7

SYMMETRY

NO LINES

8.

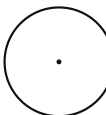


Figure 8

SYMMETRY

NO LINES

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

MAKE YOUR OWN: Draw and label one new figure for SYMMETRY and one new figure for NO LINES.

SYMMETRY

NO LINES

CHALLENGE

CHALLENGE: Draw a figure with exactly two lines of symmetry, and draw both symmetry lines.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	SYMMETRY	A square has 4 lines of symmetry.
2	Figure 2 (isosceles)	SYMMETRY	An isosceles triangle has 1 line of symmetry from the top vertex to the midpoint of the base.
3	Figure 3 (polygon)	NO LINES	The three sides and angles do not make matching mirror halves.
4	Figure 4 (rectangle)	SYMMETRY	A non-square rectangle has 2 lines of symmetry, one vertical and one horizontal.
5	Figure 5 (parallelogram)	NO LINES	A general parallelogram cannot be folded into matching halves.
6	Figure 6 (polygon)	NO LINES	No line divides this uneven pentagon into matching mirror halves.
7	Figure 7 (equilateral)	SYMMETRY	An equilateral triangle has 3 lines of symmetry.
8	Figure 8 (circle)	SYMMETRY	Every line through the center of a circle is a line of symmetry.

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)

- **SYMMETRY:** A regular pentagon, labeled SYMMETRY.
- **NO LINES:** A quadrilateral with four different side lengths, labeled NO LINES.

Challenge: An oval with a vertical line and a horizontal line through its center.

Sort key: 1 SYMMETRY, 2 SYMMETRY, 3 NO LINES, 4 SYMMETRY, 5 NO LINES, 6 NO LINES, 7 SYMMETRY, 8 SYMMETRY. For Part 2, accept explanations that use matching folded halves or identify a valid symmetry line.