

Symmetry Side Sort

Do the two sides match exactly?

2.MG.3 "The student will identify, describe, and create plane figures (including circles, triangles, squares, and rectangles) that have at least one line of symmetry and explain its relationship with congruency..."

NAME _____

DATE _____

HAS A SYMMETRY LINE

A symmetry line splits a figure into two halves that match exactly. The halves are congruent, so they have the same shape and size.

A heart with a line straight down its middle.

NO SYMMETRY LINE

No line can split this figure into two matching halves. Folding on a line would not make the sides cover each other.

A crooked lightning-bolt shape.

1 SORT _____ 8 items

Part 1: Circle HAS LINE or NO LINE for each figure; Part 2: Pick two items and explain how folding or looking carefully shows whether the two sides match.

- | | | |
|---|--------------------------------|-------------------------------|
| 1. A circle with a line through its center | ☐ HAS LINE | ☐ NO LINE |
| 2. A triangle with 3 different side lengths | ☐ HAS LINE | ☐ NO LINE |
| 3. A square with a line from its top middle to its bottom middle | ☐ HAS LINE | ☐ NO LINE |
| 4. An L-shaped figure | ☐ HAS LINE | ☐ NO LINE |
| 5. A rectangle with a line straight across its middle | ☐ HAS LINE | ☐ NO LINE |
| 6. A trapezoid with 4 different side lengths | ☐ HAS LINE | ☐ NO LINE |
| 7. A triangle with 2 equal slanted sides and a line from the top point to the middle of the bottom side | ☐ HAS LINE | ☐ NO LINE |
| 8. A square with a line from one corner to the opposite corner | ☐ HAS LINE | ☐ NO LINE |

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 for HAS LINE and one new figure for NO LINE. For your HAS LINE figure, tell where you would draw the symmetry line.

HAS LINE

NO LINE

CHALLENGE

Draw a figure with two different symmetry lines. Draw both lines, then describe the congruent halves made by one line.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A circle with a line through its center	HAS LINE	Any line through the center of a circle makes two congruent halves.
2	A triangle with 3 different side lengths	NO LINE	A scalene triangle has no line that makes matching mirror halves.
3	A square with a line from its top middle to its bottom middle	HAS LINE	The vertical middle line makes two congruent rectangles.
4	An L-shaped figure	NO LINE	Its parts do not fold into matching halves on any line.
5	A rectangle with a line straight across its middle	HAS LINE	The horizontal middle line makes two congruent rectangles.
6	A trapezoid with 4 different side lengths	NO LINE	Different left and right sides cannot make matching mirror halves.
7	A triangle with 2 equal slanted sides and a line from the top point to the middle of the bottom side	HAS LINE	The line makes two congruent mirror-image triangles.
8	A square with a line from one corner to the opposite corner	HAS LINE	The diagonal is a symmetry line and makes two congruent triangles.

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)

- **HAS LINE:** A regular pentagon with a line from its top point to the middle of its bottom side.
- **NO LINE:** A four-sided figure with a short top side, a long bottom side, and two slanted sides of different lengths.

Challenge: Draw a square with a vertical line and a horizontal line through its center. The vertical line makes a left rectangle and a right rectangle that are congruent.

Accept equivalent descriptions and drawings when the stated line truly makes two congruent mirror halves. For Part 2, students may justify by saying the sides would cover each other when folded on the line.