Fold or Not

Sort shapes by their matching folds.

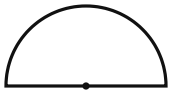
MT.4.G.3 "Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts, identify line-symmetric figures, and draw lines of symmetry..."

NAME _____ DATE _____

HAS A MATCHING FOLD

A line across the shape splits it into two parts that match when folded together. That line is a line of symmetry.

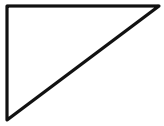
A semicircle matches when folded along a line from the middle of its flat edge to the middle of its curved edge.



HAS NO MATCHING FOLD

No line across the shape makes its two parts match when folded together.

A three-sided shape with sides of 3 cm, 4 cm, and 5 cm has no matching fold.



1 SORT

8 items

Circle MATCH or NONE for each figure, then choose one figure from each group and explain how you know using the fold test.

1.

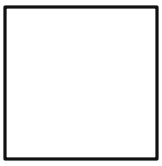


Figure 1

MATCH NONE

2.

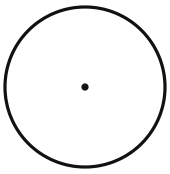


Figure 2

MATCH NONE

3.



Figure 3

MATCH NONE

4.

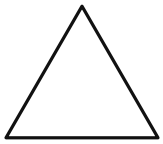


Figure 4

MATCH NONE

5.

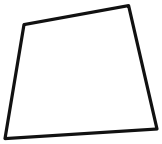


Figure 5

MATCH NONE

6.

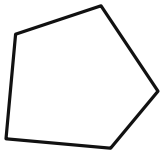


Figure 6

MATCH NONE

7.



Figure 7

MATCH NONE

8.

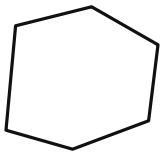


Figure 8

MATCH NONE

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 shape for MATCH and one for NONE, and give enough detail for someone else to draw each one.

MATCH

NONE

CHALLENGE

Draw an original geometric shape for a poster about a Montana community event featuring Indigenous artists. Give your shape exactly one line of symmetry, draw the line, and explain the fold test.

ANSWER KEY # Fold or Not

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	**MATCH**	A square has lines of symmetry through the midpoints of opposite sides and through opposite corners.
2	Figure 2 (circle)	**MATCH**	Any line through the center divides a circle into matching halves.
3	Figure 3 (parallelogram)	**NONE**	A slanted parallelogram has no line of symmetry.
4	Figure 4 (equilateral)	**MATCH**	A line from any corner to the midpoint of the opposite side divides this shape into matching halves.
5	Figure 5 (polygon)	**NONE**	This uneven four-sided shape has no line that divides it into matching halves.
6	Figure 6 (polygon)	**NONE**	This uneven five-sided shape has no line of symmetry.
7	Figure 7 (rectangle)	**MATCH**	A line through the midpoints of either pair of opposite sides divides a rectangle into matching halves.
8	Figure 8 (polygon)	**NONE**	This uneven six-sided shape has no 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)

- **MATCH**: A regular octagon with eight equal sides.
- **NONE**: A triangle with sides of 4 cm, 5 cm, and 6 cm.

Challenge: Draw a five-sided shape with a flat bottom, two equal vertical sides, and a pointed top centered above the bottom. Draw a vertical line from the top point to the middle of the bottom. Folding on that line makes the two sides match.

For Part 2, accept explanations that identify a matching fold for one MATCH figure and explain why no fold works for one NONE figure. For the challenge, check that the student's original shape has exactly one line of symmetry.