Mirror or Not?

Sort figures by vertical reflection symmetry.

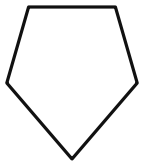
G.2D.1.11 "Use numeric, graphic, and algebraic representations of transformations in two dimensions (e.g., reflections, translations, dilations, rotations about the origin by multiples of 90̊) to solve problems involving figures on a coordinate plane..."

NAME _____ DATE _____

VERTICAL MIRROR SYMMETRY

Imagine folding the outline along a vertical line through its middle. If both halves match exactly, the figure has vertical mirror symmetry.

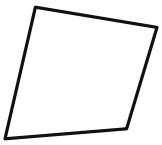
The two halves of this outline match after a vertical fold.



NO VERTICAL MIRROR SYMMETRY

If the two halves do not match after a vertical fold, the figure does not have vertical mirror symmetry.

The two halves of this outline do not match after a vertical fold.



1 SORT

8 items

For Part 1, circle MIRROR or NO MIRROR for each figure; for Part 2, choose two figures from different categories and explain how you know where each belongs.

1.

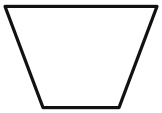


Figure 1

MIRROR **NO MIRROR**

2.

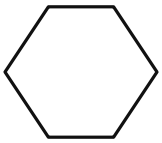


Figure 2

MIRROR **NO MIRROR**

3.

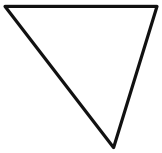


Figure 3

MIRROR **NO MIRROR**

4.

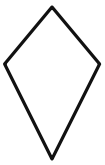


Figure 4

MIRROR **NO MIRROR**

5.

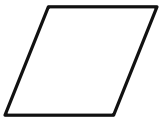


Figure 5

MIRROR **NO MIRROR**

6.

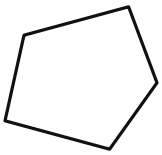


Figure 6

MIRROR **NO MIRROR**

7.

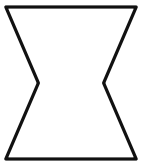


Figure 7

MIRROR **NO MIRROR**

8.

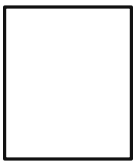


Figure 8

MIRROR **NO MIRROR**

2 PROVE IT

Explain your thinking

Choose two figures from different categories and explain how you know where each belongs.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

For Part 3, list the vertices of one new MIRROR polygon and one new NO MIRROR polygon in order, using coordinates from 0 to 100.

MIRROR _____

NO MIRROR _____

CHALLENGE

For your MIRROR polygon, name two matching vertices and write a coordinate rule for reflecting across x = 50.

ANSWER KEY # Mirror or Not?

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PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (polygon)	**MIRROR**	The left and right halves match across x = 50.
2	Figure 2 (polygon)	**MIRROR**	Each vertex has a matching vertex across x = 50.
3	Figure 3 (polygon)	**NO MIRROR**	The bottom vertex is not below the midpoint of the top side.
4	Figure 4 (polygon)	**MIRROR**	The left and right vertices match across the vertical line through the top and bottom vertices.
5	Figure 5 (polygon)	**NO MIRROR**	A vertical reflection does not make the slanted sides overlap.
6	Figure 6 (polygon)	**NO MIRROR**	No vertical fold makes all its vertices and sides match.
7	Figure 7 (polygon)	**MIRROR**	Its inward corners and outer vertices pair across x = 50.
8	Figure 8 (polygon)	**MIRROR**	A vertical fold through the middle makes the two halves match.

PART 2 · PROVE IT

Task: Choose two figures from different categories and explain how you know where each belongs. Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **MIRROR**: (50, 15), (80, 75), (20, 75).
- **NO MIRROR**: (10, 15), (70, 15), (85, 65), (25, 65).

Challenge: The vertices (80, 75) and (20, 75) match. The rule is $(x, y) \rightarrow (100 - x, y)$.

Part 2 explanations should identify a vertical fold that makes both halves match, or a feature that prevents them from matching. For the challenge, accept any matching vertex pair from the student's polygon with the correct reflection rule.