

Mirror Fold Sort

Find the mirror folds in polygons.

3.GSR.6.3 "Identify lines of symmetry in polygons."

NAME _____

DATE _____

HAS A LINE OF SYMMETRY

A polygon has a line of symmetry when you can fold it on that line and both halves match exactly.

A square has 4 lines of symmetry.

NO LINE OF SYMMETRY

A polygon has no line of symmetry when no fold can make two matching halves.

A quadrilateral with side lengths 2 cm, 3 cm, 4 cm, and 5 cm has no line of symmetry.

1 SORT _____ 8 items

For each numbered polygon, circle HAS LINE or NO LINE, then choose two items and explain how a fold would make matching halves or would not.

1. a regular triangle

HAS LINE

NO LINE

2. a scalene triangle

HAS LINE

NO LINE

3. a parallelogram that is not a rectangle or a rhombus

HAS LINE

NO LINE

4. a regular pentagon

HAS LINE

NO LINE

5. a rectangle that is not a square

HAS LINE

NO LINE

6. a regular octagon

HAS LINE

NO LINE

7. a trapezoid with no equal sides

HAS LINE

NO LINE

8. an isosceles trapezoid

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

Draw and name one polygon that HAS LINE and one polygon that has NO LINE.

HAS LINE _____

NO LINE _____

CHALLENGE

Draw a polygon with exactly 2 lines of symmetry. Draw both lines.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	a regular triangle	HAS LINE	A regular triangle has 3 lines of symmetry.
2	a scalene triangle	NO LINE	All sides are different, so no fold makes matching halves.
3	a parallelogram that is not a rectangle or a rhombus	NO LINE	This type of parallelogram has no reflection symmetry.
4	a regular pentagon	HAS LINE	A regular pentagon has 5 lines of symmetry.
5	a rectangle that is not a square	HAS LINE	It has 2 lines of symmetry, one vertical and one horizontal.
6	a regular octagon	HAS LINE	A regular octagon has 8 lines of symmetry.
7	a trapezoid with no equal sides	NO LINE	No fold can make its two halves match.
8	an isosceles trapezoid	HAS LINE	It has 1 line of symmetry through the middle.

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 decagon.
- **NO LINE:** A triangle with side lengths 3 cm, 4 cm, and 5 cm.

Challenge: A rhombus that is not a square, with both diagonals drawn. Each diagonal is a line of symmetry.

For Part 2, accept explanations that describe a fold making reflected, matching halves. A line of symmetry must make matching halves, not just two halves with the same area.