

Pair Patrol

Sort quadrilaterals by their parallel side pairs.

7.MG.3 "The student will compare and contrast quadrilaterals based on their properties and determine unknown side lengths and angle measures of quadrilaterals. Compare and contrast properties of the following quadrilaterals: parallelogram..."

NAME _____

DATE _____

PARALLELOGRAM FAMILY

A parallelogram has two pairs of opposite parallel sides. Rectangles, squares, and rhombi belong in this family.

A slanted windowpane has each opposite pair of edges staying the same distance apart. It fits **TWO PAIRS**.

TRAPEZOID

A trapezoid has exactly one pair of parallel sides. Its other two sides are not parallel.

A trapezoid-shaped lampshade has a narrow rim parallel to a wider rim, while its slanted sides are not parallel. It fits **ONE PAIR**.

1 SORT _____ 8 items

Circle **TWO PAIRS** or **ONE PAIR** for each quadrilateral description.

- | | | |
|--|------------------|-----------------|
| 1. A rectangle. | TWO PAIRS | ONE PAIR |
| 2. A quadrilateral has exactly one pair of parallel sides. | TWO PAIRS | ONE PAIR |
| 3. A rhombus. | TWO PAIRS | ONE PAIR |
| 4. Each pair of opposite sides is parallel and congruent. | TWO PAIRS | ONE PAIR |
| 5. One pair of opposite sides is parallel. The other pair would meet if the sides were extended. | TWO PAIRS | ONE PAIR |
| 6. Its angles are 72° , 108° , 72° , and 108° in order around the figure. | TWO PAIRS | ONE PAIR |
| 7. Two opposite sides are 6 cm and 11 cm long and parallel. The other opposite sides are not parallel. | TWO PAIRS | ONE PAIR |
| 8. A square. | TWO PAIRS | ONE PAIR |

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 example that fits TWO PAIRS and one new example that fits ONE PAIR. Label each example.

TWO PAIRS

ONE PAIR

CHALLENGE

A trapezoid has parallel bases. One angle on a leg measures 67° . What is the angle next to it on the same leg? Show an equation.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A rectangle.	TWO PAIRS	A rectangle has two pairs of opposite parallel sides.
2	A quadrilateral has exactly one pair of parallel sides.	ONE PAIR	Exactly one pair of parallel sides defines a trapezoid in this worksheet.
3	A rhombus.	TWO PAIRS	A rhombus has two pairs of opposite parallel sides.
4	Each pair of opposite sides is parallel and congruent.	TWO PAIRS	The figure has two pairs of opposite parallel sides, so it is a parallelogram.
5	One pair of opposite sides is parallel. The other pair would meet if the sides were extended.	ONE PAIR	Only one pair is parallel, so the figure is a trapezoid.
6	Its angles are 72° , 108° , 72° , and 108° in order around the figure.	TWO PAIRS	Both pairs of opposite angles are congruent, which identifies a parallelogram.
7	Two opposite sides are 6 cm and 11 cm long and parallel. The other opposite sides are not parallel.	ONE PAIR	The figure has exactly one pair of parallel sides.
8	A square.	TWO PAIRS	A square has two pairs of opposite parallel sides.

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)

- **TWO PAIRS:** A quadrilateral has four right angles.
- **ONE PAIR:** A quadrilateral has parallel bases and two legs that are not parallel.

Challenge: 113° , because $67 + 113 = 180$.

This worksheet uses the exclusive definition of trapezoid, exactly one pair of parallel sides. For the challenge, angles on the same leg of a trapezoid are supplementary because the bases are parallel.