

Parallel Pair Detectives

Find shapes with two pairs of parallel sides.

4.MG.5.a "Develop definitions for parallelograms, rectangles, squares, rhombi, and trapezoids through the exploration of properties and attributes."

NAME _____

DATE _____

PARALLELOGRAM

A parallelogram has four sides. Both pairs of opposite sides are parallel, so they will never meet.

A slanted four-sided tile with opposite sides that stay the same distance apart is a parallelogram.

NOT A PARALLELOGRAM

A shape is not a parallelogram if it does not have two pairs of opposite sides that are parallel. A shape with a different number of sides is also not a parallelogram.

A five-sided shape is not a parallelogram.

1 SORT _____ 8 items

Circle YES or NO for each shape, then choose two items and explain which side pairs are parallel or not parallel.

- | | |
|---|--|
| 1. A rectangle | ☐ YES ☐ NO |
| 2. A trapezoid with exactly one pair of parallel sides | ☐ YES ☐ NO |
| 3. A rhombus | ☐ YES ☐ NO |
| 4. A kite with no parallel sides | ☐ YES ☐ NO |
| 5. A square | ☐ YES ☐ NO |
| 6. A quadrilateral with four right angles | ☐ YES ☐ NO |
| 7. A triangle | ☐ YES ☐ NO |
| 8. A quadrilateral with one pair of opposite sides parallel and the other pair not parallel | ☐ YES ☐ NO |

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 of a parallelogram and one new example that is not a parallelogram.

YES _____

NO _____

CHALLENGE

Draw a quadrilateral that has two pairs of parallel sides but does not have four right angles. Explain why it is a parallelogram.

PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	A rectangle	YES	A rectangle has two pairs of opposite sides that are parallel.
2	A trapezoid with exactly one pair of parallel sides	NO	It has only one pair of parallel sides.
3	A rhombus	YES	A rhombus has two pairs of opposite sides that are parallel.
4	A kite with no parallel sides	NO	It has no pairs of parallel sides.
5	A square	YES	A square has two pairs of opposite sides that are parallel.
6	A quadrilateral with four right angles	YES	A quadrilateral with four right angles is a rectangle, which has two pairs of parallel sides.
7	A triangle	NO	A triangle has three sides, not four sides.
8	A quadrilateral with one pair of opposite sides parallel and the other pair not parallel	NO	It has only one pair of 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)

- **YES:** A rectangle that is 6 cm long and 3 cm wide.
- **NO:** A four-sided kite with two pairs of touching equal sides and no parallel sides.

Challenge: A slanted parallelogram. It has two pairs of opposite sides that are parallel, and it does not have four right angles.

Answers for the sort are YES, NO, YES, NO, YES, YES, NO, NO. In Part 2, look for an explanation about two pairs of opposite sides being parallel, or for a clear reason that the shape does not have this property.