Rectangle Match Lab

Sort rectangle pairs by what matches and what changes.

NY-3.MD.8.b "Identify rectangles with the same perimeter and different areas or with the same area and different perimeters."

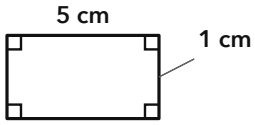
NAME _____ DATE _____

SAME PERIMETER, DIFFERENT AREA

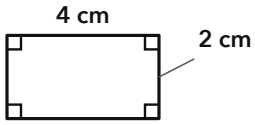
Choose this category when both rectangles have the same distance around the outside, but they cover different amounts of space. Find perimeter by adding all side lengths and area by multiplying length times width.

A 1 cm by 5 cm rectangle and a 2 cm by 4 cm rectangle both have a perimeter of 12 cm. Their areas are 5 square cm and 8 square cm.

Rectangle A



Rectangle B

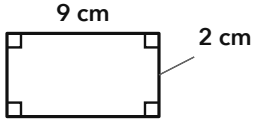


SAME AREA, DIFFERENT PERIMETER

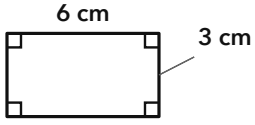
Choose this category when both rectangles cover the same amount of space, but their distances around the outside are different. Find area by multiplying length times width and perimeter by adding all side lengths.

A 2 cm by 9 cm rectangle and a 3 cm by 6 cm rectangle both have an area of 18 square cm. Their perimeters are 22 cm and 18 cm.

Rectangle A



Rectangle B



1 SORT

8 items

For each set, circle PERIMETER or AREA, then pick two sets and explain by finding each pair's perimeter and area.

Rectangle A **Rectangle B**

1.



Figure 1

PERIMETER **AREA**

Rectangle A **Rectangle B**

2.



Figure 2

PERIMETER **AREA**

Rectangle A **Rectangle B**

3.

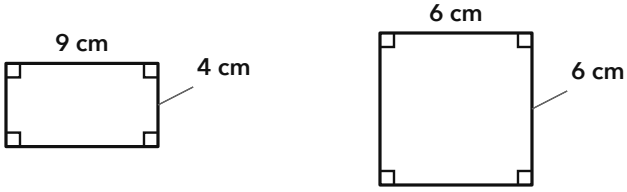


Figure 3

PERIMETER **AREA**

Rectangle A **Rectangle B**

4.



Figure 4

PERIMETER **AREA**

Rectangle A **Rectangle B**

5.

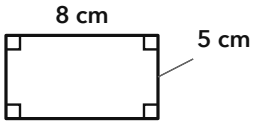


Figure 5

PERIMETER **AREA**

Rectangle A **Rectangle B**

6.



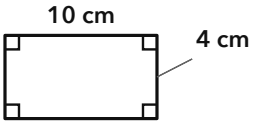
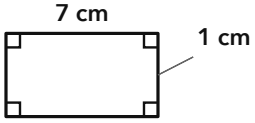


Figure 6

PERIMETER **AREA**

Rectangle A **Rectangle B**

7.



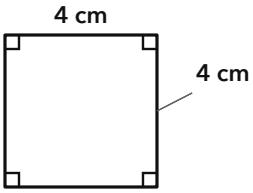
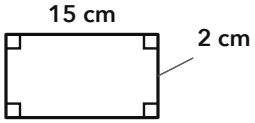


Figure 7

PERIMETER **AREA**

Rectangle A **Rectangle B**

8.



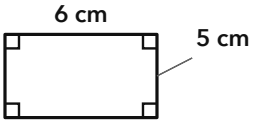


Figure 8

PERIMETER **AREA**

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 pair of whole-number rectangles for PERIMETER and one new pair for AREA. Label the side lengths and show the perimeter and area of each rectangle.

PERIMETER

AREA

CHALLENGE

Create three whole-number rectangles that all have an area of 36 square cm and three different perimeters.

ANSWER KEY

Rectangle Match Lab

GRADE 3 · NY-3.MD.8.b

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (pair)	**PERIMETER**	Both perimeters are 16 cm. The areas are 12 square cm and 15 square cm.
2	Figure 2 (pair)	**AREA**	Both areas are 12 square cm. The perimeters are 26 cm and 14 cm.
3	Figure 3 (pair)	**AREA**	Both areas are 36 square cm. The perimeters are 26 cm and 24 cm.
4	Figure 4 (pair)	**PERIMETER**	Both perimeters are 20 cm. The areas are 16 square cm and 21 square cm.
5	Figure 5 (pair)	**PERIMETER**	Both perimeters are 24 cm. The areas are 27 square cm and 35 square cm.
6	Figure 6 (pair)	**AREA**	Both areas are 40 square cm. The perimeters are 26 cm and 28 cm.
7	Figure 7 (pair)	**PERIMETER**	Both perimeters are 16 cm. The areas are 7 square cm and 16 square cm.
8	Figure 8 (pair)	**AREA**	Both areas are 30 square cm. The perimeters are 34 cm and 22 cm.

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)

- **PERIMETER**: A 3 cm by 10 cm rectangle and a 4 cm by 9 cm rectangle each have a perimeter of 26 cm. Their areas are 30 square cm and 36 square cm.
- **AREA**: A 5 cm by 6 cm rectangle and a 3 cm by 10 cm rectangle each have an area of 30 square cm. Their perimeters are 22 cm and 26 cm.

Challenge: 1 cm by 36 cm, 2 cm by 18 cm, and 3 cm by 12 cm all have an area of 36 square cm. Their perimeters are 74 cm, 40 cm, and 30 cm.

For Part 2, students should show or state the perimeter and area for both rectangles in each chosen set. Accept rotated rectangles and any correct new whole-number examples that fit each category.