

Rectangle Switcheroo

Compare perimeter and area in different rectangles.

GRADE 4 • MA.4.GR.2.2

MA.4.GR.2.2 "Solve problems involving rectangles with the same perimeter and different areas or with the same area and different perimeters."

NAME _____

DATE _____

SAME, BUT DIFFERENT

Perimeter is the distance around a rectangle. Rectangles can have the same perimeter but different areas, or the same area but different perimeters.

WORKED EXAMPLE

Compare a 5-unit by 11-unit rectangle and a 7-unit by 9-unit rectangle.

1. First perimeter: $5 + 5 + 11 + 11 = 32$ units.
2. Second perimeter: $7 + 7 + 9 + 9 = 32$ units.
3. Areas: $5 \times 11 = 55$ and $7 \times 9 = 63$ square units.

Answer: The rectangles have the same perimeter and different areas: 55 square units and 63 square units.

PRACTICE 5 problems

- 1** Rectangle A is 4 units by 14 units. Rectangle B is 6 units by 12 units. Do they have the same perimeter? Find both areas.

ANSWER _____

- 2** A 3-unit by 16-unit rectangle and a 6-unit by 8-unit rectangle have the same area. Find each perimeter.

ANSWER _____

- 3** A rectangle is 6 units by 14 units. Another rectangle has the same perimeter and a width of 8 units. Find its length and the two areas.

ANSWER _____

- 4** Rectangle A is 4 units by 18 units. Rectangle B is 6 units by 12 units. Do they have the same area? Find both perimeters.

ANSWER _____

- 5** Two rectangles each have a perimeter of 44 units. One is 2 units by 20 units. The other is 10 units by 12 units. Which has the greater area?

ANSWER _____

APPLY IT Show your work

- 1** Rina is making two rectangular game mats. Each mat has an area of 80 square inches. Mat A is 4 inches by 20 inches. Mat B is 8 inches by 10 inches. Which mat needs more edge tape, and how much more?

WORK SPACE

ANSWER _____

- 2** At the school art show, two display boards each use 52 feet of border. Board A is 6 feet by 20 feet. Board B is 10 feet by 16 feet. Which board has more space for art? How many more square feet?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A 48-square-unit rectangle has whole-number side lengths. Which dimensions make the smallest perimeter? Explain why.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Rectangle A is 4 units by 14 units. Rectangle B is 6 units by 12 units. Do they have the same perimeter? Find both areas.	Yes. Both perimeters are 36 units. Areas: A = 56 square units, B = 72 square units.
2	A 3-unit by 16-unit rectangle and a 6-unit by 8-unit rectangle have the same area. Find each perimeter.	3 by 16: 38 units. 6 by 8: 28 units.
3	A rectangle is 6 units by 14 units. Another rectangle has the same perimeter and a width of 8 units. Find its length and the two areas.	The other length is 12 units. Areas: 84 square units and 96 square units.
4	Rectangle A is 4 units by 18 units. Rectangle B is 6 units by 12 units. Do they have the same area? Find both perimeters.	Yes. Both areas are 72 square units. Perimeters: A = 44 units, B = 36 units.
5	Two rectangles each have a perimeter of 44 units. One is 2 units by 20 units. The other is 10 units by 12 units. Which has the greater area?	The 10-unit by 12-unit rectangle. Its area is 120 square units, compared with 40 square units.

PART 2 • APPLY IT

- Mat A needs 12 more inches of edge tape.** Mat A has a perimeter of 48 inches, and Mat B has a perimeter of 36 inches. Subtract to find 12 inches.
- Board B has 40 more square feet of space.** Board A has an area of 120 square feet, and Board B has an area of 160 square feet. Subtract 120 from 160.

CHALLENGE

6 units by 8 units, with a perimeter of 28 units. Among the factor pairs of 48, 6 and 8 are closest together, so they make the smallest perimeter.

Accept reversed length and width. Accept equivalent explanations that the factor pair with side lengths closest together has the smallest perimeter.