LESSON MAKER PRO

Rectangle Switch-Up

Same perimeter or same area, different rectangle

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."

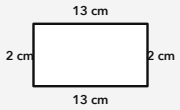
NAME _____ DATE _____

KEEP ONE, CHANGE ONE

Perimeter is the distance around a rectangle, P = 2 x (length + width). Area is the space inside, A = length x width. Rectangles can have the same perimeter but different areas, or the same area but different perimeters.

WORKED EXAMPLE

Use the rectangle in the figure. A new rectangle is 10 cm by ____ cm and has the same perimeter. Find the missing side and the new area.



1. Perimeter = 2 x (13 + 2) = 30 cm.
2. The first area is 13 x 2 = 26 square cm.
3. For perimeter 30 cm, the side lengths add to 15 cm.
4. 10 cm + 5 cm = 15 cm. New area = 10 x 5 = 50 square cm.

Answer: 5 cm; 50 square cm

PRACTICE 4 problems

1 Rectangles are 3 cm by 9 cm and 4 cm by 8 cm. They have the same perimeter. Find both areas.

ANSWER _____

2 A 4 cm by 12 cm rectangle and a 6 cm by 8 cm rectangle have the same area. Find each perimeter.

ANSWER _____

3 A 7 cm by 11 cm rectangle has the same perimeter as a 4 cm by ___ cm rectangle. Fill in the blank.

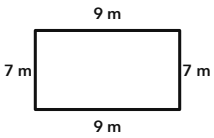
ANSWER _____

4 A 4 cm by 15 cm rectangle and a 3 cm by 20 cm rectangle have the same area. Find each perimeter. Which rectangle has the smaller perimeter?

ANSWER _____

APPLY IT Show your work

1 The school garden bed is shown in the figure. A new rectangular bed has the same area and is 3 m wide. What is its length? How much greater is its perimeter?



ANSWER _____

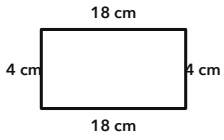
2 A game-club poster is 4 ft by 18 ft. A second poster has the same area and is 6 ft wide. Which poster needs less border, and how many feet less?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Use the rectangle in the figure. Find whole-number side lengths for a different rectangle that has the same perimeter and a greater area. Explain.



WORK SPACE AND ANSWER

ANSWER KEY

Rectangle Switch-Up

GRADE 4 · MA.4.GR.2.2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Rectangles are 3 cm by 9 cm and 4 cm by 8 cm. They have the same perimeter. Find both areas.	**27 square cm; 32 square cm**
2	A 4 cm by 12 cm rectangle and a 6 cm by 8 cm rectangle have the same area. Find each perimeter.	**32 cm; 28 cm**
3	A 7 cm by 11 cm rectangle has the same perimeter as a 4 cm by ___ cm rectangle. Fill in the blank.	**14 cm**
4	A 4 cm by 15 cm rectangle and a 3 cm by 20 cm rectangle have the same area. Find each perimeter. Which rectangle has the smaller perimeter?	**38 cm; 46 cm; the 4 cm by 15 cm rectangle**

PART 2 · APPLY IT

1. **21 m; 16 m greater** The shown bed has area 9 x 7 = 63 square m and perimeter 32 m. The new bed is 3 m by 21 m, so its perimeter is 48 m, which is 16 m greater.
2. **The second poster; 8 ft less** Both posters have area 72 square ft, so the second poster is 6 ft by 12 ft. Their perimeters are 44 ft and 36 ft.

CHALLENGE

One answer is 8 cm by 14 cm. Its perimeter is 44 cm, the same as the shown rectangle, and its area is 112 square cm, which is greater than 72 square cm.

Accept any whole-number rectangle in the challenge with perimeter 44 cm and area greater than 72 square cm. Accept correctly labeled equivalent area and perimeter units.