

Measure Claim Detectives

Decide which composite-rectangle claims are true.

4.GSR.8.3 "Solve problems involving area and perimeter of composite rectangles involving whole numbers with known side lengths."

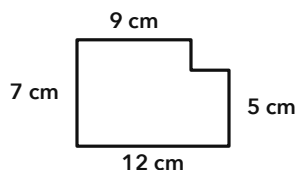
NAME _____

DATE _____

CORRECT ANSWER

The stated area or perimeter matches the figure. Area is measured in square centimeters, and perimeter is measured in centimeters.

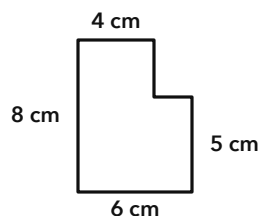
Perimeter = 38 cm. Unlabeled edges: horizontal 3 cm; vertical 2 cm.



INCORRECT ANSWER

The stated area or perimeter does not match the figure. Recheck the labeled lengths, the missing corner, and the units.

Area = 44 square centimeters. Unlabeled edges: horizontal 2 cm; vertical 3 cm.



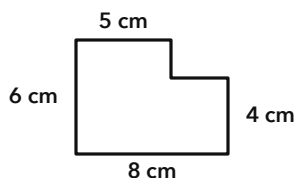
1 SORT _____ 8 items

Circle CORRECT or INCORRECT for each figure, then choose two figures and explain the area or perimeter work that proves each choice.

1. Figure 1: Area = 42 square centimeters.
Unlabeled edges: horizontal 3 cm; vertical 2 cm.

CORRECT

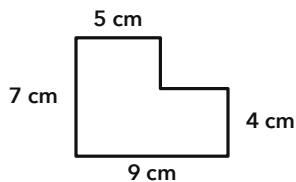
INCORRECT



2. Figure 2: Perimeter = 32 cm. Unlabeled edges: horizontal 4 cm; vertical 3 cm.

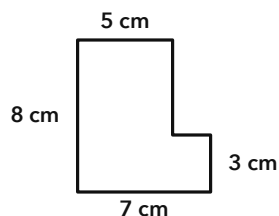
CORRECT

INCORRECT



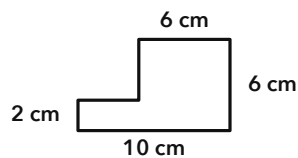
3.

Figure 3: Area = 48 square centimeters.
Unlabeled edges: horizontal 2 cm; vertical 5 cm.

CORRECT**INCORRECT**

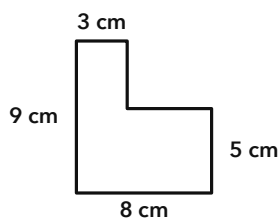
4.

Figure 4: Perimeter = 30 cm. Unlabeled edges: horizontal 4 cm; vertical 4 cm.

CORRECT**INCORRECT**

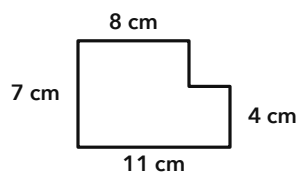
5.

Figure 5: Area = 52 square centimeters.
Unlabeled edges: horizontal 5 cm; vertical 4 cm.

CORRECT**INCORRECT**

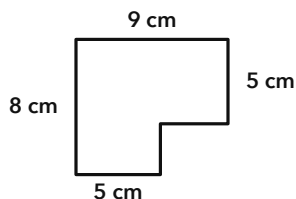
6.

Figure 6: Perimeter = 38 cm. Unlabeled edges: horizontal 3 cm; vertical 3 cm.

CORRECT**INCORRECT**

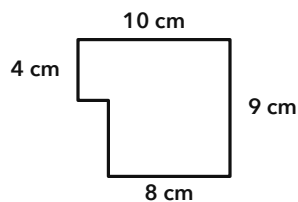
7.

Figure 7: Area = 60 square centimeters.
Unlabeled edges: horizontal 4 cm; vertical 3 cm.

CORRECT**INCORRECT**

8.

Figure 8: Perimeter = 38 cm. Unlabeled edges: horizontal 2 cm; vertical 5 cm.

CORRECT**INCORRECT**

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

Draw and label one new composite rectangle with a CORRECT claim and one new composite rectangle with an INCORRECT claim.

CORRECT

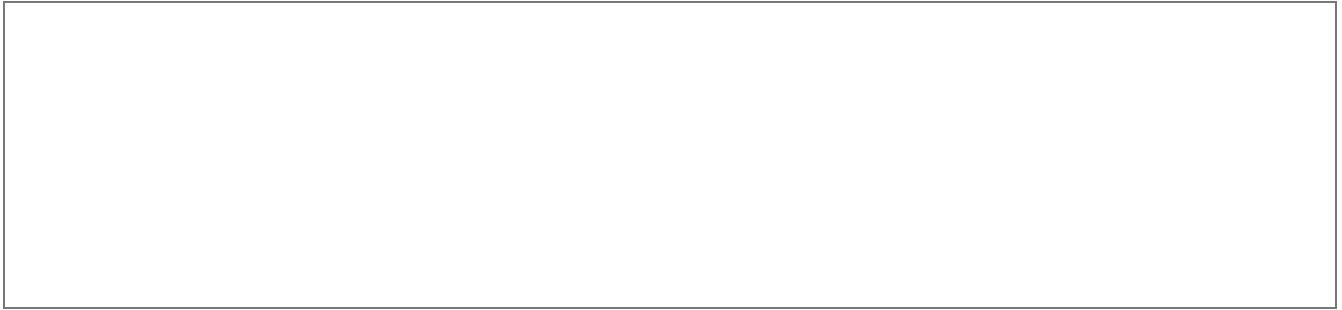
CORRECT

INCORRECT

INCORRECT

CHALLENGE

Draw and label a composite rectangle with an area of 60 square centimeters, then write its perimeter in centimeters.



PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	Figure 1: Area = 42 square centimeters. Unlabeled edges: horizontal 3 cm; vertical 2 cm. (polygon)	CORRECT	Area is $8 \times 6 - 3 \times 2 = 42$ square centimeters.
2	Figure 2: Perimeter = 32 cm. Unlabeled edges: horizontal 4 cm; vertical 3 cm. (polygon)	CORRECT	Outside edges total $9 + 4 + 4 + 3 + 5 + 7 = 32$ cm.
3	Figure 3: Area = 48 square centimeters. Unlabeled edges: horizontal 2 cm; vertical 5 cm. (polygon)	INCORRECT	Area is $7 \times 8 - 2 \times 5 = 46$ square centimeters, not 48 square centimeters.
4	Figure 4: Perimeter = 30 cm. Unlabeled edges: horizontal 4 cm; vertical 4 cm. (polygon)	INCORRECT	Outside edges total $10 + 6 + 6 + 4 + 4 + 2 = 32$ cm, not 30 cm.
5	Figure 5: Area = 52 square centimeters. Unlabeled edges: horizontal 5 cm; vertical 4 cm. (polygon)	CORRECT	Area is $8 \times 9 - 5 \times 4 = 52$ square centimeters.
6	Figure 6: Perimeter = 38 cm. Unlabeled edges: horizontal 3 cm; vertical 3 cm. (polygon)	INCORRECT	Outside edges total $11 + 4 + 3 + 3 + 8 + 7 = 36$ cm, not 38 cm.
7	Figure 7: Area = 60 square centimeters. Unlabeled edges: horizontal 4 cm; vertical 3 cm. (polygon)	CORRECT	Area is $9 \times 8 - 4 \times 3 = 60$ square centimeters.
8	Figure 8: Perimeter = 38 cm. Unlabeled edges: horizontal 2 cm; vertical 5 cm. (polygon)	CORRECT	Outside edges total $8 + 9 + 10 + 4 + 2 + 5 = 38$ 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)

- **CORRECT:** A 7 cm by 6 cm rectangle has a 2 cm by 3 cm corner removed. Area = $(7 \times 6) - (2 \times 3) = 42 - 6 = 36$ square centimeters.
- **INCORRECT:** An 8 cm by 7 cm rectangle has a 3 cm by 2 cm corner removed. Perimeter = 28 cm.

Challenge: A 10 cm by 7 cm rectangle has a 2 cm by 5 cm corner removed. Its area is 60 square centimeters, and its perimeter is 34 cm.

For Part 2, students should show subtraction of a missing rectangle for area or addition of all outside edges for perimeter. The incorrect Part 3 sample has a perimeter of 30 cm, so its claim of 28 cm is incorrect.