Area and Perimeter of Rectangles

Explore ideas and representations

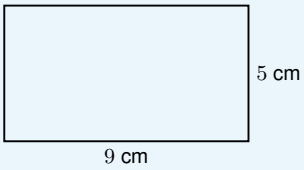
Name _____ **Date** _____ **Score** _____ / 8

QUICK REVIEW

For a rectangle, area $A = l \times w$ counts square units; perimeter $P = 2(l + w)$ measures the boundary. A 7-cm by 4-cm rectangle has $A = 28$ cm^2 and $P = 22$ cm. Do not mix square units and length units.

Worked example

Find the area and perimeter of this rectangle.



1. The area counts 5 rows of 9 unit squares: $9 \times 5 = 45$.

2. The boundary uses two of each side: $9 + 5 + 9 + 5 = 28$.

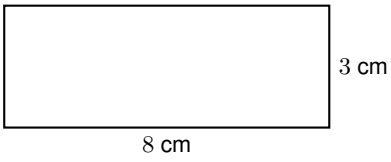
3. Check: area $45 \div 9 = 5$ rows; half the perimeter is $28 \div 2 = 14 = 9 + 5$.

Answer: Area 45 cm^2; perimeter 28 cm.

Practice Problems

Show your thinking.

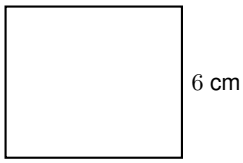
1. Find the area of this rectangle.



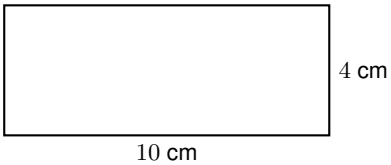
2. Find the distance around this rectangle.



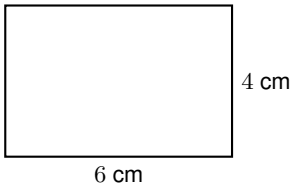
3. Calculate both area and perimeter.



4. How many squares with 1-cm sides cover the rectangle without gaps?

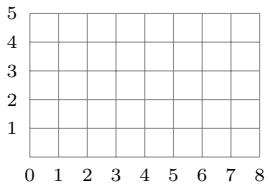


5. Fix: A 6-cm by 4-cm rectangle has perimeter 24 cm^2.



6. A rectangle has area 56 cm^2 and length 8 cm. Find its width.

7. Draw a rectangle 5 squares long and 3 squares wide on this grid. Find its area and perimeter in grid units.



8. Can a 4-cm by 6-cm rectangle and a 3-cm by 8-cm rectangle have equal areas but different perimeters?

Answer Key

1. 24 cm^2.
2. 34 cm.
3. Area 42 cm^2; perimeter 26 cm.
4. 40 one-centimeter squares.
5. Area 24 cm^2; perimeter 20 cm.
6. 7 cm.
7. Area 15 square units; perimeter 16 units.
8. Yes; both areas 24 cm^2, perimeters 20 cm and 22 cm.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The area counts 3 rows of 8 unit squares: $8 \times 3 = 24$.
2. The boundary uses two of each side: $8 + 3 + 8 + 3 = 22$.
3. Check: area $24 \div 8 = 3$ rows; half the perimeter is $22 \div 2 = 11 = 8 + 3$.

Problem 2

1. The area counts 5 rows of 12 unit squares: $12 \times 5 = 60$.
2. The boundary uses two of each side: $12 + 5 + 12 + 5 = 34$.
3. Check: area $60 \div 12 = 5$ rows; half the perimeter is $34 \div 2 = 17 = 12 + 5$.

Problem 3

1. The area counts 6 rows of 7 unit squares: $7 \times 6 = 42$.
2. The boundary uses two of each side: $7 + 6 + 7 + 6 = 26$.
3. Check: area $42 \div 7 = 6$ rows; half the perimeter is $26 \div 2 = 13 = 7 + 6$.

Problem 4

1. The 10 cm side fits 10 one-centimeter squares in each row.
2. The 4 cm side allows 4 rows. Count $4 \times 10 = 40$ squares.
3. The 40 squares cover 40 cm^2 with no gaps or overlaps.

Problem 5

1. $6 \times 4 = 24$ counts square units, so it is the area.
2. $6 + 4 + 6 + 4 = 20$ measures the boundary.
3. Perimeter uses cm, not cm^2.

Problem 6

1. Area equals $8 \times$ width $= 56$.
2. $56 \div 8 = 7$ cm.
3. $8 \times 7 = 56$ cm^2 checks the width.

Problem 7

1. Draw 5 unit intervals across and 3 up.
2. $5 \times 3 = 15$ square units.
3. $5 + 3 + 5 + 3 = 16$ units around.

Problem 8

1. $4 \times 6 = 24$ and $3 \times 8 = 24$.
2. $2(4 + 6) = 20$ cm.
3. $2(3 + 8) = 22$ cm, different from 20 cm.

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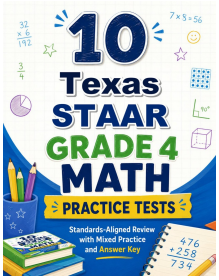

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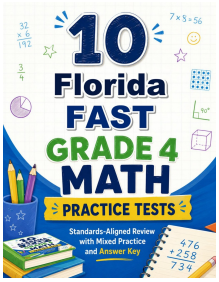

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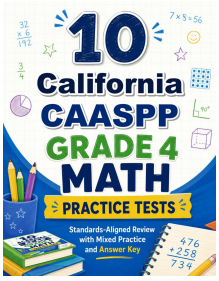

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