Area as Additive

Spot mistakes, reason, and work backward

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

Area is additive. Split a shape into rectangles that cover it without overlap. Multiply to find each rectangle's area, then add the areas. A shared edge adds no extra area, and an overlapping patch should count only once.

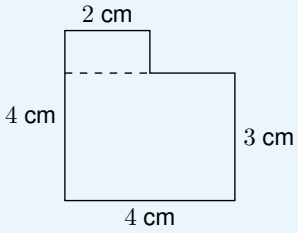
Worked example

Split at the dashed line. Find the two rectangle areas and add them.

1. The lower rectangle has area $4 \times 3 = 12$ cm^2. The upper height is $4 - 3 = 1$ cm.

2. The upper area is $2 \times 1 = 2$ cm^2. Total: $12 + 2 = 14$ cm^2.

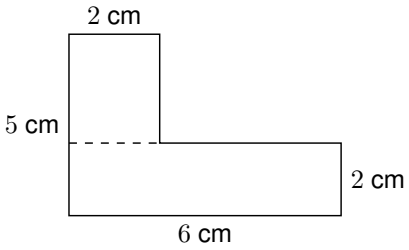
Answer: 14 cm^2.



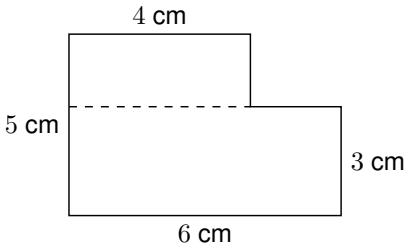
Practice Problems

Show your thinking.

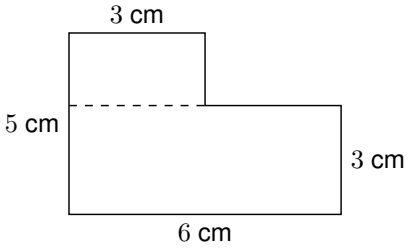
1. Sam adds the full left area 10 and full bottom area 12, getting 22 cm^2. What area was counted twice? Correct the total.



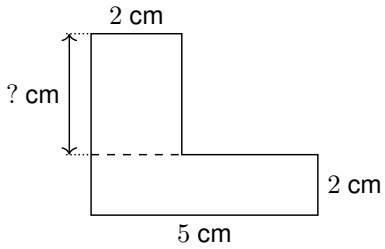
2. The whole figure has area 26 cm^2. The lower rectangle covers 18 cm^2. Find the upper part area.



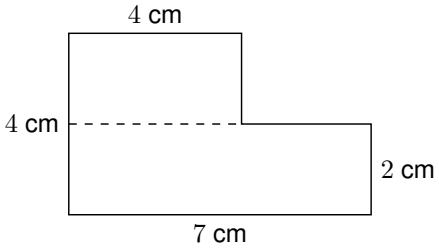
3. A student calls the area 30 cm^2 by counting the missing corner too. Correct the area.



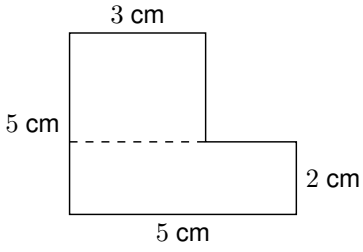
4. The full L-shaped surface has area 18 cm^2. Find the height of the small upper rectangle using areas, not the drawing scale.



5. A student calls the area 28 cm^2 by counting the missing corner too. Correct the area.



6. The whole figure has area 19 cm^2. The lower rectangle covers 10 cm^2. Find the upper part area.



Answer Key

1. Overlap 4 cm^2; true area 18 cm^2.
2. 8 cm^2.
3. 24 cm^2.
4. Upper height 4 cm.
5. 22 cm^2.
6. 9 cm^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The lower-left rectangle belongs to both counts: $2 \times 2 = 4$ cm^2.

2. Remove its extra count: $10 + 12 - 4 = 18$ cm^2.

Problem 2

1. The upper area is the remaining part: $26 - 18 = 8$ cm^2.

2. Check: $18 + 8 = 26$ cm^2. No surface is counted in both parts.

Problem 3

1. The surrounding rectangle has area $6 \times 5 = 30$ cm^2. The missing corner is 3 cm by 2 cm.

2. The corner area is $3 \times 2 = 6$ cm^2. Subtract: $30 - 6 = 24$ cm^2.

Problem 4

1. Lower area: $5 \times 2 = 10$ cm^2. Upper area: $18 - 10 = 8$ cm^2.

2. The upper width is 2 cm, so its height is $8 \div 2 = 4$ cm. Check $10 + (2 \times 4) = 18$.

Problem 5

1. The surrounding rectangle has area $7 \times 4 = 28$ cm^2. The missing corner is 3 cm by 2 cm.

2. The corner area is $3 \times 2 = 6$ cm^2. Subtract: $28 - 6 = 22$ cm^2.

Problem 6

1. The upper area is the remaining part: $19 - 10 = 9$ cm^2.

2. Check: $10 + 9 = 19$ cm^2. No surface is counted in both parts.

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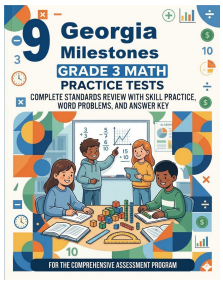

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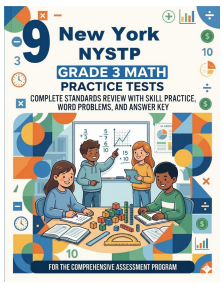

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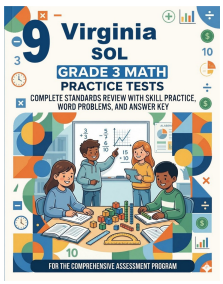

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