Area as Additive

Explore ideas and representations

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.

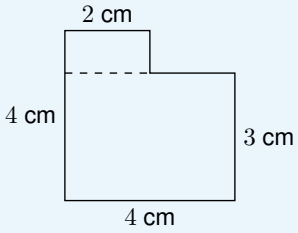
Worked example

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.

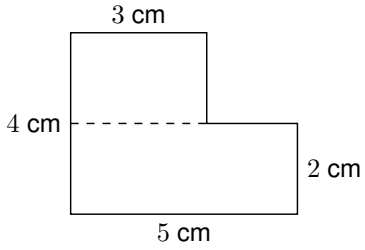
Answer: 14 cm^2.



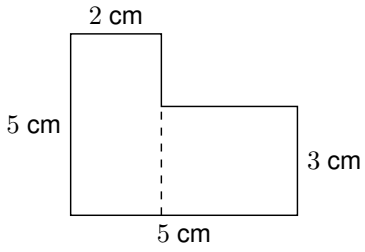
Practice Problems

Show your thinking.

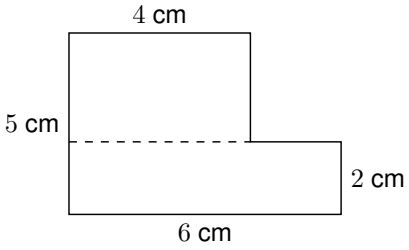
1. Split at the dashed line. Find the two rectangle areas and add them.



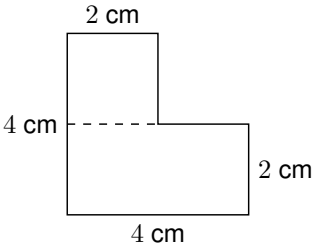
2. Use the vertical split. Find the left and right rectangle areas.



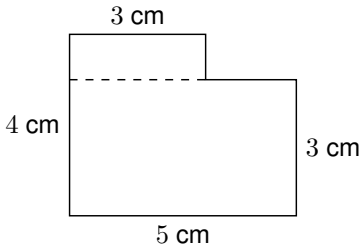
3. Split at the dashed line. Find the two rectangle areas and add them.



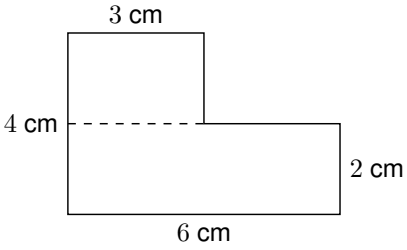
4. Find the full surrounding rectangle area, then subtract the missing upper-right rectangle.



5. Sam adds the full left area 12 and full bottom area 15, getting 27 cm^2. What area was counted twice? Correct the total.



6. The whole figure has area 18 cm^2. The lower rectangle covers 12 cm^2. Find the upper part area.



Answer Key

1. 16 cm^2.
2. 19 cm^2.
3. 24 cm^2.
4. 12 cm^2.
5. Overlap 9 cm^2; true area 18 cm^2.
6. 6 cm^2.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. The lower rectangle has area $5 \times 2 = 10$ cm^2. The upper height is $4 - 2 = 2$ cm.

2. The upper area is $3 \times 2 = 6$ cm^2. Total: $10 + 6 = 16$ cm^2.

Problem 2

1. Left area: $2 \times 5 = 10$ cm^2. Right width: $5 - 2 = 3$ cm.

2. Right area: $3 \times 3 = 9$ cm^2. Add: $10 + 9 = 19$ cm^2.

Problem 3

1. The lower rectangle has area $6 \times 2 = 12$ cm^2. The upper height is $5 - 2 = 3$ cm.

2. The upper area is $4 \times 3 = 12$ cm^2. Total: $12 + 12 = 24$ cm^2.

Problem 4

1. The surrounding rectangle has area $4 \times 4 = 16$ cm^2. The missing corner is 2 cm by 2 cm.

2. The corner area is $2 \times 2 = 4$ cm^2. Subtract: $16 - 4 = 12$ cm^2.

Problem 5

1. The lower-left rectangle belongs to both counts: $3 \times 3 = 9$ cm^2.

2. Remove its extra count: $12 + 15 - 9 = 18$ cm^2.

Problem 6

1. The upper area is the remaining part: $18 - 12 = 6$ cm^2.

2. Check: $12 + 6 = 18$ cm^2. No surface is counted in both parts.

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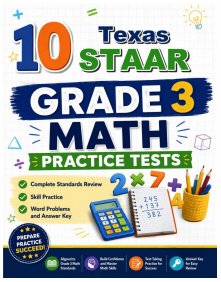

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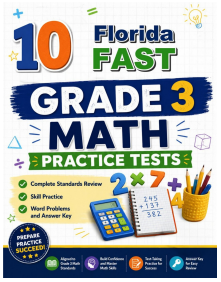

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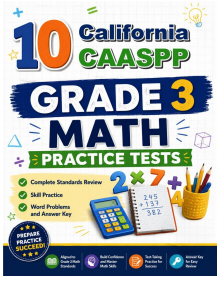

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