Area via Multiplication and Addition

Apply the skill to decisions and designs

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

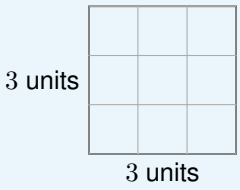
QUICK REVIEW

Find a rectangle's area by adding the number of squares in each row. Multiply the number of rows by the squares in one row to get the same area. Each unit square counts as 1 square unit.

Worked example

Write an addition equation and a multiplication equation for the area.

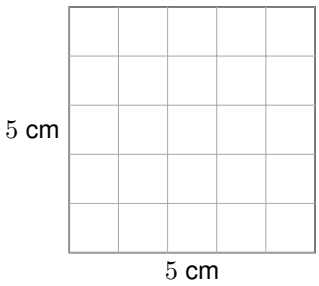
1. There are 3 rows, each containing 3 unit squares.
2. Adding row sizes gives $3 + 3 + 3 = 9$. The equal-addend form is $3 \times 3 = 9$.
Answer: $3 + 3 + 3 = 3 \times 3 = 9$ square units.



Practice Problems

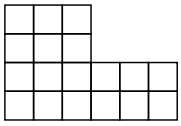
Show your thinking.

1. A mosaic has 5 equal rows of 5 tiles. Each tile covers 1 cm^2. Find the covered area two ways.



2. Pick two panels to cover exactly 18 square units with no overlap: A is 2 by 3, B is 3 by 4, and C is 2 by 4. Show the products and sum.

3. Find the area of the stepped mat. Split it into two rectangles with different widths. Write two products and add.



Each square: 1 sq unit

4. A 3-row mat has 4 tiles per row. Add one new row of 4 tiles, then one new column that reaches through all rows. How many tiles are added? What is the final area?

5. Two rugs each cover 3 rows of 4 squares. A runner adds another row of 4 squares. With no overlaps, how large is the combined area? What is its length in rows if the rugs and runner form one rectangle 4 squares wide?

6. A board has 4 rows of 5 squares. A 2 by 2 label covers the bottom-right corner. Find the uncovered area by multiplying to count the squares and then subtracting. Check by adding the uncovered rows.

Answer Key

1. 25 cm^2.
2. A and B.
3. 18 square units.
4. 8 tiles added; 20 square units.
5. 28 square units; 7 rows.
6. 16 square units.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Add the rows: $5 + 5 + 5 + 5 + 5 = 25$ tiles.

2. Multiply: $5 \times 5 = 25$ unit tiles, so the covered area is 25 cm^2.

Problem 2

1. The areas are A: $2 \times 3 = 6$, B: $3 \times 4 = 12$, and C: $2 \times 4 = 8$ square units.

2. A and B give $6 + 12 = 18$. The other pairs give $6 + 8 = 14$ and $12 + 8 = 20$.

Problem 3

1. The bottom 2 rows each have 6 squares: $2 \times 6 = 12$.

2. The top 2 rows each have 3 squares: $2 \times 3 = 6$. Total: $12 + 6 = 18$.

Problem 4

1. The original area is $3 \times 4 = 12$. The new row has 4 tiles and makes 4 rows.

2. The column needs 4 more tiles. That is $4 + 4 = 8$ added, so $12 + 8 = 20$. Check: $4 \times 5 = 20$.

Problem 5

1. Each rug covers $3 \times 4 = 12$ squares. Two rugs and the runner cover $12 + 12 + 4 = 28$.

2. The 4-wide rectangle has $28 \div 4 = 7$ rows. This also equals $3 + 3 + 1 = 7$.

Problem 6

1. The board covers $4 \times 5 = 20$. The label covers $2 \times 2 = 4$. Uncovered area: $20 - 4 = 16$.

2. The top two rows each have 5 uncovered squares; the bottom two each have 3. Check: $5 + 5 + 3 + 3 = 16$.

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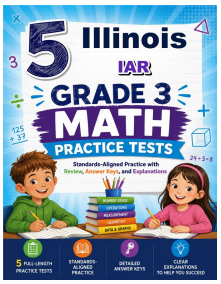

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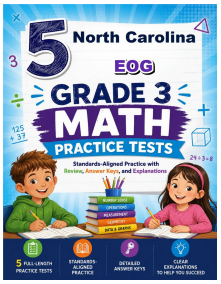

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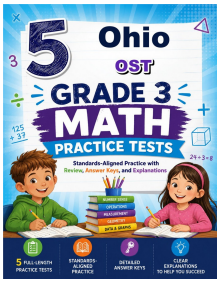

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