Unit Squares

Apply the skill to decisions and designs

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

QUICK REVIEW

A unit square has side lengths 1 unit and covers 1 square unit. If its sides are each 1 cm, the area is 1 cm^2. Count squares, not edges. A larger tile may cover more than one unit square.

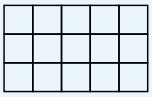
Worked example

Each small square has sides 1 cm long. Find the area of the tiled rectangle and name the unit.

1. One 1-cm-by-1-cm square covers 1 cm^2. There are 5 squares in each of 3 rows.

2. The count is $5 \times 3 = 15$ unit squares, so the area is 15 cm^2.

Answer: 15 cm^2.

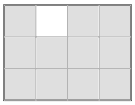


Each: 1 cm^2

Practice Problems

Show your thinking.

1. All 12 tiles are on the mat, but two are stacked in one shaded cell. How much area is covered now? Explain how to cover the whole mat.

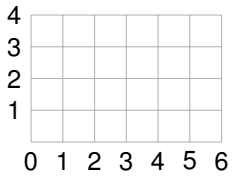


Shaded = one covering tile

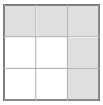
2. Choose a sensible square unit for a classroom floor: square centimeters or square meters. Explain using a unit square.

3. A mat has area 10 square meters. It is covered by 1-meter-by-1-meter tiles. How many tiles are needed?

4. Design two nonoverlapping paper strips that together cover 8 unit squares. Draw each as a single row on the grid. Use different lengths and write an addition equation.



5. A mosaic has its top row and right column painted. Eli adds $3 + 3$ and says 6 unit squares are painted. Is Eli right? Count the painted area.



Shaded = one covering tile

6. Cut each of two unit squares into two equal halves. Give one half away. How much area is left? Name the number of whole unit squares and the extra part.

Answer Key

1. 11 square units now. Move the top tile from the stack to the empty cell.
2. Square meters.
3. 10 tiles.
4. One way: $5 + 3 = 8$ unit squares.
5. No; 5 square units are painted.
6. 1 square unit and another half square unit.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Count covered cells, not tiles: $4 + 4 + 3 = 11$ shaded unit squares.

2. The stacked tile adds no new coverage. Move it into the blank cell to cover $11 + 1 = 12$ square units.

Problem 2

1. A square meter is the area of a 1-m-by-1-m square. A classroom floor can hold several such squares.

2. A 1-cm-by-1-cm square is tiny by comparison, so square meters give a more useful count for the floor.

Problem 3

1. One 1-m-by-1-m tile has area $1 \times 1 = 1$ m^2.

2. $10 \div 1 = 10$ such tiles cover 10 m^2 without gaps or overlaps.

Problem 4

1. Choose a row of 5 squares. The other needs $8 - 5 = 3$ squares.

2. Outline 5 neighboring squares in one row and 3 in another. Count $5 + 3 = 8$ covered squares; they do not overlap.

Problem 5

1. The top row has 3 painted squares. The right column has 3, but the corner belongs to both.

2. Count the corner once: $3 + 3 - 1 = 5$ painted square units.

Problem 6

1. Two squares make $2 \times 2 = 4$ halves. Give away one: $4 - 1 = 3$ halves.

2. Two halves make one unit square. The third half leaves $1 + \frac{1}{2}$ square units.

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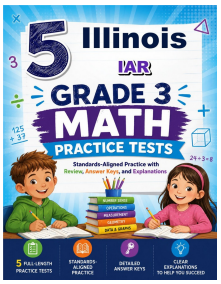

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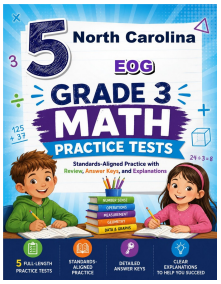

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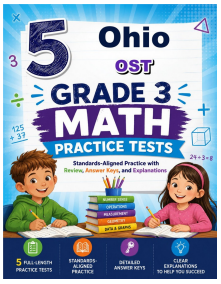

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