Area by Tiling

Explore ideas and representations

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

QUICK REVIEW

Cover the rectangle with unit squares, without gaps or overlaps. Each square covers 1 square unit. Count the tiles in one row and the number of equal rows. The row pattern repeats to cover the whole rectangle.

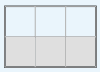
Worked example

The bottom row is tiled. How many tiles will cover the whole rectangle?

1. The bottom row contains 3 tiles. The side length allows 2 equal rows.

2. Repeat the tiled row 2 times: $2 \times 3 = 6$ tiles.

Answer: 6 tiles.

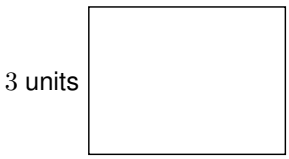


Shaded = one covering tile

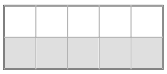
Practice Problems

Show your thinking.

1. Draw unit-square tiles to cover the rectangle. Use the side lengths to count rows and columns. Find its area.

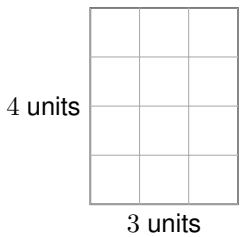


2. The bottom row is tiled. How many tiles will cover the whole rectangle?



Shaded = one covering tile

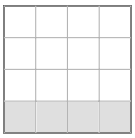
3. A tiled rectangle has 4 rows of 3 squares. Rotate the mat a quarter turn. Describe the new rows and check the tile count.



4. Draw unit-square tiles to cover the rectangle. Use the side lengths to count rows and columns. Find its area.

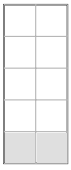


5. A helper tiles one row of 4 squares and says the entire 4-row rectangle needs only 4 tiles. Correct the total.



Shaded = one covering tile

6. The bottom row is tiled. How many tiles will cover the whole rectangle?



Shaded = one covering tile

Answer Key

1. 3 rows of 4 tiles; 12 square units.
2. 10 tiles.
3. 3 rows of 4; still 12 tiles.
4. 3 rows of 6 tiles; 18 square units.
5. 16 tiles.
6. 10 tiles.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. A one-unit tile fits 4 times along the bottom and 3 times along the side.
2. The full tiling has $3 \times 4 = 12$ squares with no gaps or overlaps.

Problem 2

1. The bottom row contains 5 tiles. The side length allows 2 equal rows.
2. Repeat the tiled row 2 times: $2 \times 5 = 10$ tiles.

Problem 3

1. Before turning: $4 \times 3 = 12$ tiles.
2. After turning, old columns become rows: $3 \times 4 = 12$. No tile was added or removed.

Problem 4

1. A one-unit tile fits 6 times along the bottom and 3 times along the side.
2. The full tiling has $3 \times 6 = 18$ squares with no gaps or overlaps.

Problem 5

1. The first row uses 4 tiles, but 3 more rows need $3 \times 4 = 12$ tiles.
2. All rows need $4 + 12 = 16$ tiles.

Problem 6

1. The bottom row contains 2 tiles. The side length allows 5 equal rows.
2. Repeat the tiled row 5 times: $5 \times 2 = 10$ tiles.

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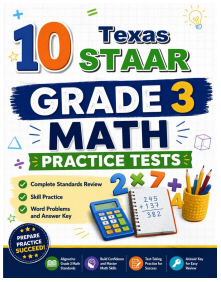

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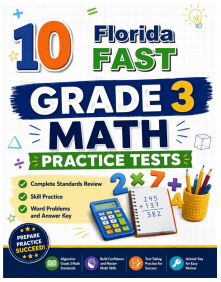

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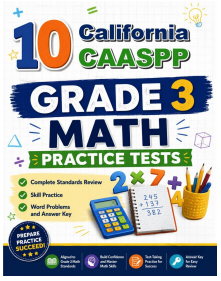

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