LESSON MAKER PRO

Tile the Space

Count squares and multiply to find area.

GRADE 5 · 5.NOS.D.12.c

5.NOS.D.12.c "Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths."

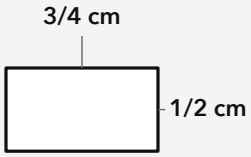
NAME _____ DATE _____

TWO WAYS TO FIND AREA

Choose a unit fraction that divides both side lengths evenly. Count the small squares, then multiply the side lengths to check the area.

WORKED EXAMPLE

Use 1/4-cm squares to find the area of the rectangle. Check by multiplying.



1. 1/2 = 2/4, so 3 squares fit along one side and 2 along the other.
2. 3 x 2 = 6 squares. Each has an area of 1/16 sq cm.
3. 6/16 = 3/8 sq cm. Multiplying checks it: 3/4 x 1/2 = 3/8.

Answer: 3/8 sq cm

PRACTICE 4 problems

1 A rectangle is 2/3 m by 5/6 m. How many 1/6-m squares fit? What is its area?

ANSWER _____

2 A rectangle is 3/5 in. by 4/5 in. Find its area by counting 1/5-in. squares and by multiplying.

ANSWER _____

3 A rectangle is 5/8 ft by 3/8 ft. How many 1/8-ft squares fit? What is its area?

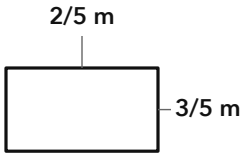
ANSWER _____

4 A rectangle is 7/10 yd by 2/5 yd. Find its area by counting 1/10-yd squares and by multiplying.

ANSWER _____

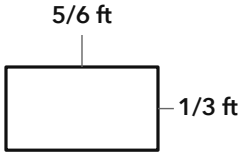
APPLY IT Show your work

1 A game board has the dimensions shown. How many 1/5-m squares cover it? What is its area?



ANSWER _____

2 A small team banner has the dimensions shown. How many 1/6-ft square patches cover it? What is its area?



ANSWER _____

CHALLENGE One step up

A rectangle is 1 1/5 ft by 3/10 ft. Explain how 1/10-ft squares and multiplication give the same area.

WORK SPACE AND ANSWER

ANSWER KEY

Tile the Space

GRADE 5 · 5.NOS.D.12.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A rectangle is 2/3 m by 5/6 m. How many 1/6-m squares fit? What is its area?	**20 squares; 5/9 sq m**
2	A rectangle is 3/5 in. by 4/5 in. Find its area by counting 1/5-in. squares and by multiplying.	**12 squares give 12/25 sq in.; 3/5 x 4/5 = 12/25 sq in.**
3	A rectangle is 5/8 ft by 3/8 ft. How many 1/8-ft squares fit? What is its area?	**15 squares; 15/64 sq ft**
4	A rectangle is 7/10 yd by 2/5 yd. Find its area by counting 1/10-yd squares and by multiplying.	**28 squares give 28/100 = 7/25 sq yd; 7/10 x 2/5 = 7/25 sq yd.**

PART 2 · APPLY IT

1. **6 squares; 6/25 sq m** Two squares fit along one side and three along the other, making 6 squares. Multiplying 2/5 x 3/5 also gives 6/25 sq m.
2. **10 patches; 5/18 sq ft** Since 1/3 = 2/6, the banner fits 5 x 2 = 10 patches, for 10/36 = 5/18 sq ft. Multiplying 5/6 x 1/3 gives 5/18 sq ft.

CHALLENGE

1 1/5 = 12/10, so 12 x 3 = 36 squares cover the rectangle. Their total area is 36/100 = 9/25 sq ft. Multiplying 6/5 x 3/10 also gives 9/25 sq ft.

Accept equivalent fractions for areas and square units written as sq m, sq ft, sq in., or sq yd. Students should count squares along both sides before multiplying the counts.