LESSON MAKER PRO

Products in Pieces

Use arrays and area models to explain multiplication.

GRADE 4 · 4.NBT.B.11.a

4.NBT.B.11.a "Illustrate and explain the product of two factors using equations, rectangular arrays, and area models."

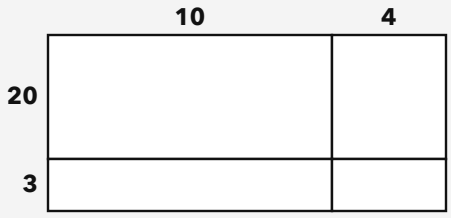
NAME _____ DATE _____

SPLIT, MULTIPLY, ADD

An area model splits each factor into parts. Multiply each row part by each column part, then add the smaller areas to find the whole product. An equation can show how the smaller areas make the total.

WORKED EXAMPLE

Use the area model to find the product. Show how the smaller areas make the total.

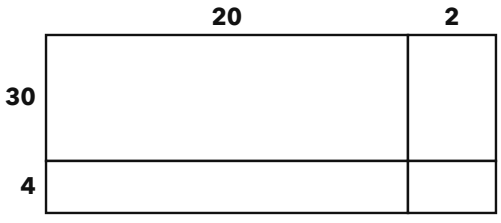


1. Find the areas in the 20-row part: 20 x 10 = 200 and 20 x 4 = 80.
2. Find the areas in the 3-row part: 3 x 10 = 30 and 3 x 4 = 12.
3. Add the areas: 200 + 80 + 30 + 12 = 322.

Answer: 23 x 14 = 322

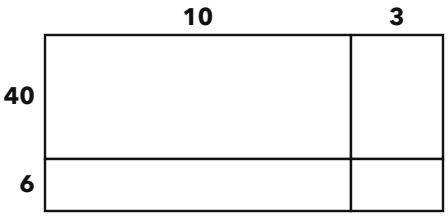
PRACTICE 6 problems

1 Use the area model. Write an equation that adds the four smaller areas, and find the product.



ANSWER _____

2 Use the area model. Write an equation that adds the four smaller areas, and find the product.



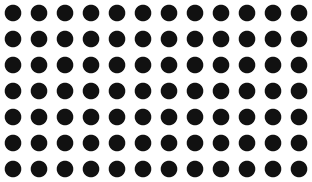
ANSWER _____

3 Find 32 x 15. Write the four partial products and their sum.

ANSWER _____

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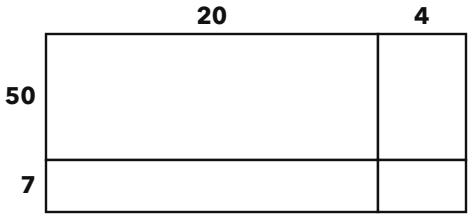
4 How many dots are in the array? Write a multiplication equation.



ANSWER _____

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5 Use the area model. Write an equation that adds the four smaller areas, and find the product.



ANSWER _____

_____

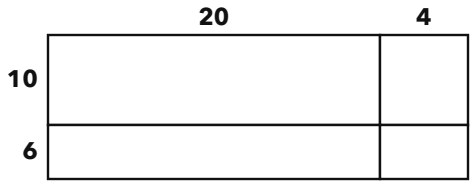
6 Find 26 x 13. Show how 26 x (10 + 3) helps you find the product.

ANSWER _____

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APPLY IT Show your work

1 At the school talent show, the area model shows the number of rows and the seats in each row. How many seats are there? Show how the smaller areas make the total.



ANSWER _____

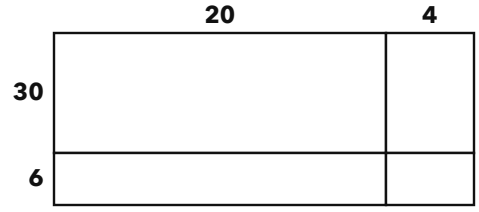
2 A video game gives 28 coins for each level a player finishes. Maya finishes 15 levels. How many coins does she earn? Show an equation that breaks one factor into parts.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student used this area model and wrote 36 x 24 = 600 + 120 + 80 + 24 = 824. Which smaller area is wrong? Write the correct equation and product.



WORK SPACE AND ANSWER

ANSWER KEY

Products in Pieces

GRADE 4 · 4.NBT.B.11.a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the area model. Write an equation that adds the four smaller areas, and find the product.	**34 x 22 = 600 + 60 + 80 + 8 = 748**
2	Use the area model. Write an equation that adds the four smaller areas, and find the product.	**46 x 13 = 400 + 120 + 60 + 18 = 598**
3	Find 32 x 15. Write the four partial products and their sum.	**300 + 150 + 20 + 10 = 480**
4	How many dots are in the array? Write a multiplication equation.	**7 x 12 = 84 dots**
5	Use the area model. Write an equation that adds the four smaller areas, and find the product.	**57 x 24 = 1,000 + 200 + 140 + 28 = 1,368**
6	Find 26 x 13. Show how 26 x (10 + 3) helps you find the product.	**26 x 13 = (26 x 10) + (26 x 3) = 260 + 78 = 338**

PART 2 · APPLY IT

1. **16 x 24 = 200 + 40 + 120 + 24 = 384 seats** Multiply each row part by each column part. Add the four smaller areas to find the total number of seats.
2. **28 x 15 = (28 x 10) + (28 x 5) = 280 + 140 = 420 coins** Split 15 into 10 and 5. Multiply 28 by each part and add the results.

CHALLENGE

The 6 x 20 area is 120, not 80. The correct equation is 36 x 24 = 600 + 120 + 120 + 24 = 864.

Accept partial products in any order. For the array, accept 12 x 7 = 84 as well as 7 x 12 = 84.