

Chapter 6
Lesson 10

Multiplying with Arrays

You will need

- grid paper

GOAL

Multiply two-digit numbers using arrays.

A crossword puzzle has 15 rows and 15 columns.



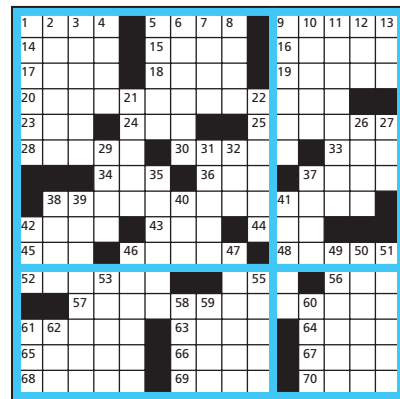
How many small squares are in the crossword puzzle?



Brandon's Strategy

I decided to organize the puzzle into four parts, as I would with base ten blocks.

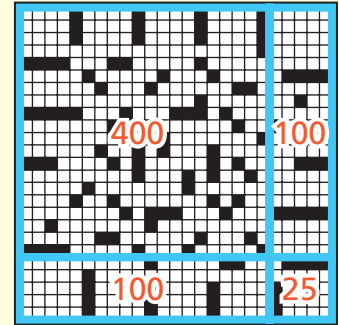
I'll write the number of rows and columns to calculate the number of small squares in each part.



- How many rows and columns of squares are in each part of the puzzle?
- How many small squares are in each part of the puzzle?
- How many squares are in the whole puzzle?

Reflecting

- D.** Brandon used the same strategy for a 25-by-25 puzzle. Why do you think he organized the puzzle like this to calculate the number of squares in the puzzle?



Checking

- Another puzzle has 36 rows of 36 squares. Use Brandon's strategy to calculate the number of squares.



Practising

- To finish a *rushnyk* (a Ukrainian towel), Mia used 18 spools of thread. Each spool held 25 m of thread. How much thread did she use?

- Sketch an array to show that 57×57 is not equal to $50 \times 50 + 7 \times 7$.

- Calculate.

a) 62×28

c) 86×26

b) 51×47

d) 93×52

- How does the model at the left show that both of the following equations are true?

$$42 \times 53 = (40 + 2) \times (50 + 3)$$

$$42 \times 53 = (40 \times 50) + (40 \times 3) + (2 \times 50) + (2 \times 3)$$

- Think about Brandon's strategy for multiplying two-digit numbers. Why do you need to know how to multiply numbers by tens to multiply two-digit numbers? Use the example 24×36 to explain.

