

FAMILY MATH

Properties of Multiplication

Dear Family,

Your student is exploring strategies to multiply with large factors. They learn that they can rotate an array and skip-count either by rows or columns and the total stays the same. Another strategy involves breaking the array into two smaller, simpler multiplication problems and then adding the totals.

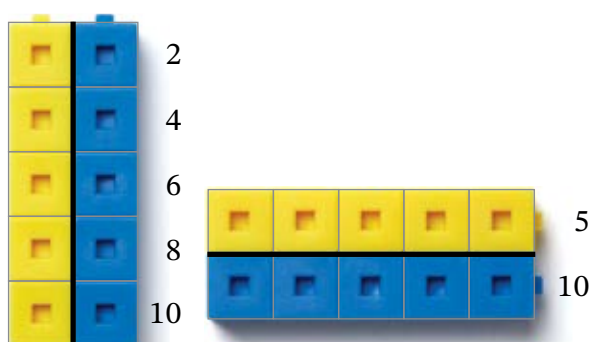
Key Terms and Symbols

break apart and distribute strategy

commutative property of multiplication

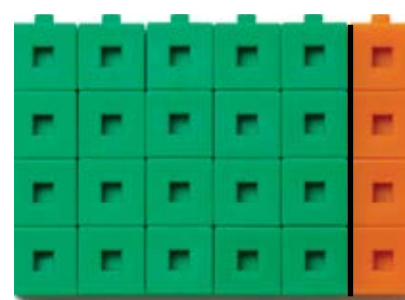
parentheses ()

rotate



$$\begin{aligned} 5 \times 2 &= 10 \\ 2 \times 5 &= 10 \end{aligned}$$

Rotating an array helps to show that the order of the factors can change without changing the product. This is called the commutative property of multiplication.



$$\begin{aligned} 5 \text{ fours} &+ 1 \text{ four} = 6 \text{ fours} \\ (5 \times 4) &+ (1 \times 4) = (6 \times 4) \\ 20 &+ 4 = 24 \end{aligned}$$

When the factors are large or unfamiliar, breaking the array apart into smaller and more familiar multiplication facts can make the total easier to find. Students call this the break apart and distribute strategy.

At-Home Activity

Tile Multiplication

If you have a wall or floor with square tiles, use chalk, masking tape, or another similar material to draw an outline around an array of tiles. With your student, discuss different strategies for counting the total number of tiles inside the array. Write down or say the multiplication equations to match. Then look at the array from another angle to notice other ways to count the tiles. Consider splitting the original array into smaller arrays to notice more strategies for finding the total number of tiles.

Instead of tiles, you could draw an array of squares outside with sidewalk chalk or create an array with square sticky notes to complete the activity.