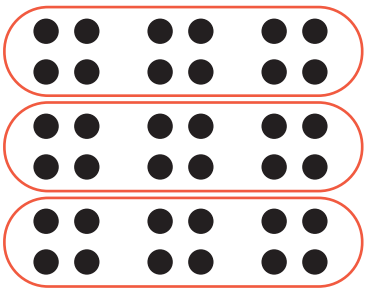
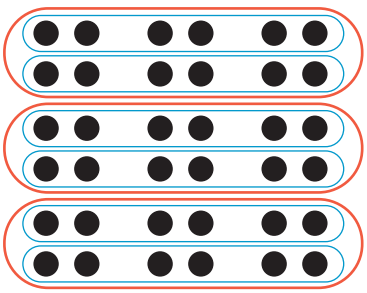
Multiplying More than Two Numbers (page 1 of 2)

There are 36 dots in this arrangement.

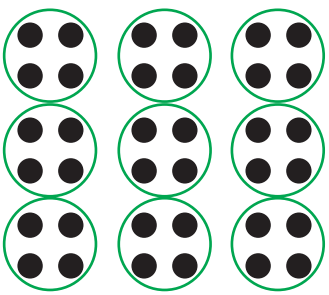
You can visualize the total number of dots in many ways.



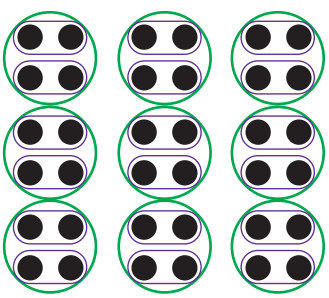
3 x 12
3 groups of 12



3 x (2 x 6)
3 groups of 12
↓
Each group of 12 is made up of 2 groups of 6.



9 x 4
9 groups of 4



9 x (2 x 2)
9 groups of 4
↓
Each group of 4 is made up of 2 groups of 2.

Multiplying More than Two Numbers (page 2 of 2)

Math Words
- **prime factorization**

Here are ways to multiply whole numbers to make 36.

two factors	three factors	four factors
2 x 18	2 x 2 x 9	2 x 2 x 3 x 3
3 x 12	2 x 3 x 6	
4 x 9	3 x 3 x 4	
6 x 6		

$2 \times 2 \times 3 \times 3$ is the longest multiplication expression with a product of 36 using only whole numbers greater than 1.

(2) x (2) x (3) x (3)

Notice that these factors are prime numbers.

$2 \times 2 \times 3 \times 3$ is the prime factorization of 36.

Find the prime factorization of 120.