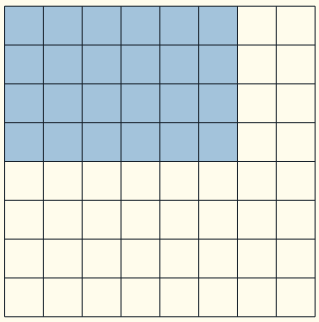
Lesson 22

Multiplication as arrays and repeated addition

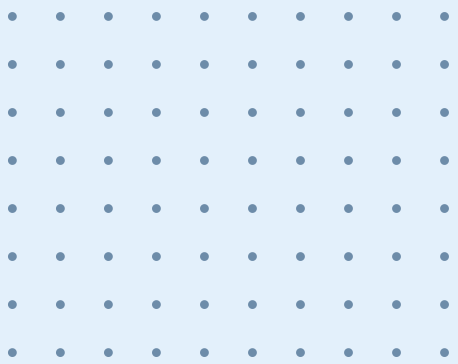
ARRAY AS ROWS × COLUMNS

1. The shaded array has **4** rows with **6** squares in each row.
2. Read the rows as repeated addition: **6 + 6 + 6 + 6**.
3. That is the same as the multiplication **4 × 6 = 24**.



WARM-UP

Use the dots to make each array. Draw a ring around each row, and use a new part of the dots each time.



1. Ring 3 rows with 5 dots in each row. Fill in: 5 + 5 + 5 = ... and 3 × 5 = ...
2. Ring 2 rows with 4 dots in each row. Fill in: 4 + 4 = ... and 2 × 4 = ...
3. Turn that array on its side: ring 4 rows with 2 dots in each row. Fill in: 4 × 2 = ... Is the total the same?

PRACTICE

1. A baker lays out **2** rows of buns with **7** buns in each row. Write it as a repeated addition and as a multiplication.
2. A shop shelf has **3** rows of jam jars with **6** jars in each row. How many jars in all?
3. A box of eggs is packed in **3** rows with **8** eggs in each row. Write it two ways and find the total.

ALWAYS, SOMETIMES, NEVER

Always, sometimes or never true? Write A, S or N.

a. An array of 3 rows of 5 buns holds the same total as 5 + 5 + 5. ☐

b. Turning an array on its side changes how many objects are inside it. ☐

c. In an array every row holds the same number of objects. ☐

d. An array of buns has more rows than objects in each row. ☐

REFLECT Did the grid make the parts of the product clearer for you?