Commutative property of multiplication

Difficulty level: Easy

Mathematics: Kindergarten to Grade 3

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Overview of the concept

This is how you swap the order of numbers when you multiply. Counting 3 rows of 4 seats or 4 rows of 3 gives you the same total, because multiplication does not care which number comes first. That freedom lets you rearrange a calculation into the easiest order, which is a handy shortcut in mental maths.



Rule

Commutative property of multiplication: $a \times b = b \times a$.

You can swap the order of the numbers you multiply and the product stays the same. It works for any two numbers.

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Worked examples

EXAMPLE 1

Q Show $3 \times 4 = 4 \times 3$



SOLUTION

3 × 4 means 3 rows of 4, which is 12 dots.

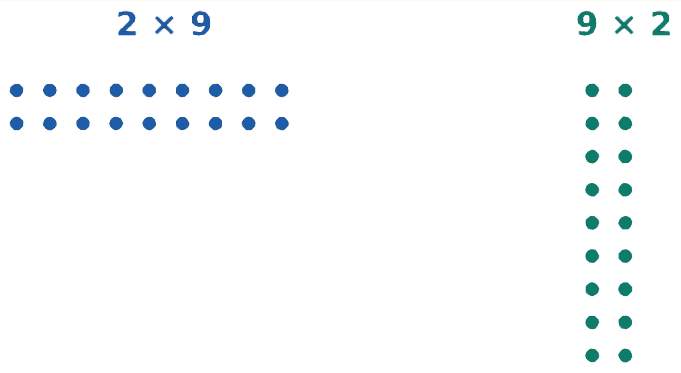
Turn the array around: now it is 4 rows of 3.

That is also 12 dots, so $3 \times 4 = 4 \times 3 = 12$.

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EXAMPLE 2

Q Use commutativity for 2 × 9



SOLUTION

2 × 9 is the same product as 9 × 2.

9 × 2 means 9 groups of 2, which is 18.

So 2 × 9 = 18 as well.

Practice questions

1 3 rows of 5 dots. Turned around, that is 5 rows of 3 dots. How many dots are there in all?

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2 $6 \times 4 = 24$. What is 4×6?

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3 An array has 4 rows of 9 dots. Spin it around so it shows 9 rows of 4 dots. What multiplication sentence matches the turned array?

A 9 x 4 = 32

B 9 x 4 = 36

C 4 x 4 = 36

D 9 x 9 = 36

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4 **Which multiplication sentence shows that 5 × 8 and 8 × 5 give the same product?**

- **A** 5 x 8 = 40 and 8 x 5 = 40
- **B** 5 x 8 = 40 and 8 x 5 = 13
- **C** 5 + 8 = 13 and 8 + 5 = 13
- **D** 5 x 8 = 13 and 8 x 5 = 40

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5 **An array has 6 rows of 6 dots. Turn it around. How many rows does the turned array have?**

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6 **$8 \times 3 = 24$. Which array shows the same product turned around?**

- **A** 3 rows of 8 dots
- **B** 8 rows of 3 dots
- **C** 3 rows of 3 dots
- **D** 8 rows of 8 dots

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7 **There are 8 rows of 2 dots. Turn the array around. How many dots are in each row now?**

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8 **Which pair of arrays shows the commutative property?**

- **A** 2 rows of 6 dots and 6 rows of 2 dots
- **B** 2 rows of 6 dots and 2 rows of 6 dots
- **C** 6 rows of 2 dots and 6 rows of 2 dots
- **D** 2 rows of 6 dots and 3 rows of 4 dots

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9 **One array has 5 rows of 2 dots and another has 2 rows of 5 dots. Do they show the same number of dots? Answer yes or no.**

- **A** yes
- **B** no

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10 **An array has 5 rows of 3 dots. Which multiplication sentence matches the array before it is turned?**

- **A** 5 x 3 = 15
- **B** 3 x 5 = 15
- **C** 5 x 3 = 8
- **D** 3 x 5 = 8

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ANSWER KEY

1. 15

2. 24

3. 9 x 4 = 36

4. 5 x 8 = 40 and 8 x 5 = 40

5. 6

6. 3 rows of 8 dots

7. 8

8. 2 rows of 6 dots and 6 rows of 2 dots

9. yes

10. 5 x 3 = 15

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