

Multiplication Properties

3rd Grade

Four rules that cut how many facts you actually have to learn.

These four properties are always true, so you can rearrange any multiplication to make it easier.

$$a \times b = b \times a$$

Commutative

$$7 \times 3 = 3 \times 7$$

Order never matters. This halves the table you must learn.

Associative

$$(2 \times 3) \times 4 = 2 \times (3 \times 4)$$

Group them however is easiest.

Distributive

$$6 \times 7 = 6 \times 5 + 6 \times 2$$

Split a hard fact into two easy ones.

Identity and zero

$$n \times 1 = n, n \times 0 = 0$$

One group of it is it. Zero groups of it is nothing.

The distributive property is the one that keeps working — it becomes long multiplication, then algebra.