Basic Properties of Multiplication

Multiplication

Multiplication is a way of adding the same number again and again. It gives the total of equal groups.

Example: 4 × 3 means 4 groups of 3, which equals 12

Basic Properties of Multiplication

i. Commutative Property

Changing the order of numbers does not change the product

Example: 6 × 5 = 30 and 5 × 6 = 30

ii. Associative Property

Grouping of numbers does not change the product

Example: (2 × 3) × 4 = 2 × (3 × 4) = 24

iii. Multiplicative Identity Property

Multiplying any number by 1 gives the same number

Example: 89 × 1 = 89

iv. Zero Property

Multiplying any number by 0 gives 0

Example: 57 × 0 = 0

Example 1

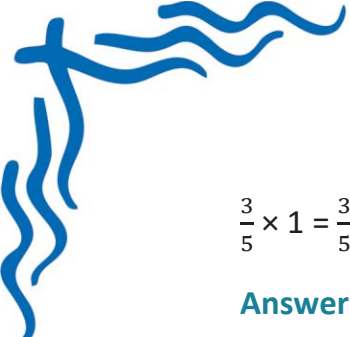**Question:** Use the commutative property to solve 7 × 9

Solution:

7 × 9 = 63 and 9 × 7 = 63

Answer: 7 × 9 = 63 by commutative property

Example 2

Question: Find the product of $\frac{3}{5} \times 1$ using the identity property

Solution:

$$\frac{3}{5} \times 1 = \frac{3}{5}$$

Answer: $\frac{3}{5}$

Summary Points

- Multiplication is repeated addition
- Changing the order or grouping does not change the product
- Multiplying by 1 keeps the number the same
- Multiplying by 0 gives 0
- These properties help in quick mental math and problem solving