

Properties of Addition

Understanding the Concept:

Addition has some special rules called properties

These rules help us add numbers easily and quickly

Let's learn about the three main properties of addition

i. Order Property of Addition

Changing the order of numbers does not change the sum

We can add numbers in any order

Example:

$$4 + 7 = 11 \text{ and } 7 + 4 = 11$$

$$\text{So, } 4 + 7 = 7 + 4$$

ii. Grouping Property of Addition

When we add three numbers, we can group them in any way

The answer will be the same

Example:

$$(2 + 3) + 5 = 5 + 5 = 10$$

$$2 + (3 + 5) = 2 + 8 = 10$$

$$\text{So, } (2 + 3) + 5 = 2 + (3 + 5)$$

iii. Zero Property of Addition

When we add 0 to any number, the answer is the number itself

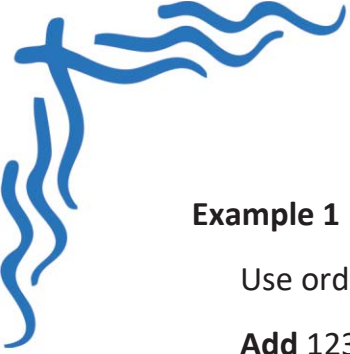
Adding zero does not change the value

Example:

$$6 + 0 = 6$$

$$0 + 9 = 9$$

Let's Understand with Examples:



Example 1

Use order property:

Add $123 + 456$

Now change the order: $456 + 123$

Solution:

$$123 + 456 = 579$$

$$456 + 123 = 579$$

So, the sum is the same in both cases

Example 2

Use grouping property:

Add $(100 + 200) + 300$ and $100 + (200 + 300)$

Solution:

$$(100 + 200) + 300 = 300 + 300 = 600$$

$$100 + (200 + 300) = 100 + 500 = 600$$

So, both give the same sum

Example 3

Use zero property:

Add $875 + 0$

Solution:

$$875 + 0 = 875$$

Adding zero does not change the number

Example 4

Use order property:

Add $345 + 123$ and $123 + 345$

Solution:

$$345 + 123 = 468$$

$$123 + 345 = 468$$

Same answer both times



Example 5

Use grouping property:

Add $(50 + 25) + 75$ and $50 + (25 + 75)$

Solution:

$$(50 + 25) + 75 = 75 + 75 = 150$$

$$50 + (25 + 75) = 50 + 100 = 150$$

So, the way we group does not change the answer

