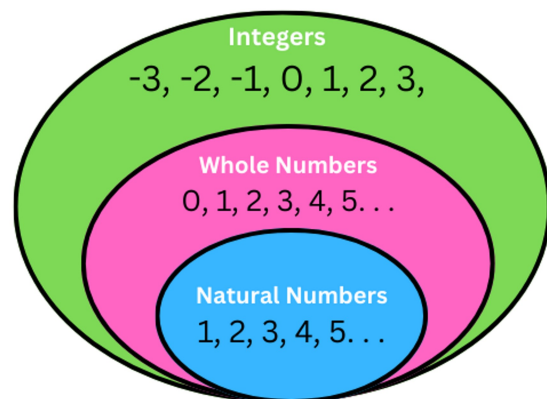


When numbers have

1. **Same sign** → **Add Numbers.**
2. **Opposite Sign** → **Subtract Numbers.**
3. **For sign in answer** → **Follow bigger number**

When sign are together

1. **Same sign** → **Make +**
2. **Opposite Sign** → **Make -**



Closure Property: After adding two integers if we receive answer as a integer, it's called Closure property.

$$5 + 3 = 8 \quad (\text{Integer})$$

$$9 - 3 = 6 \quad (\text{Integer})$$

$$9 \times 8 = 72 \quad (\text{Integer})$$

$$8 \div 9 = 0.88 \quad (\text{Not an Integer})$$

We proved that Closure works under addition subtraction and multiplication.

Commutativity: After replacing Integers if we get same answer, it's called commutativity.

$$(7 \times 9) = 63$$

$$(6 + 3) = 9$$

$$(9 \times 7) = 63$$

$$(3 + 6) = 9$$

We proved that commutativity works with addition and multiplication.

Associativity: After changing calculation order of integers if we get same answer, it's called Associativity.

$$(-7 \times 6) \times 3 = -7 \times (6 \times 3)$$

$$(-7 \times 6) \times 3 = -7 \times (6 \times 3)$$

$$-42 \times 3 = -7 \times 18$$

$$-126 = -126$$

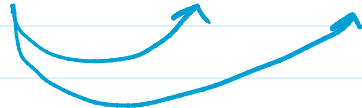
We proved that associativity works with Addition and multiplication

Identity Property: When we multiply 1 with any number, we receive same answer, it's called Identity property

$$6 \times 1 = 6 \quad / \quad 7 \times 1 = 7$$

Hence it's proved that 1 is a multiplicative identity

Distributivity property:

$$100(33 + 7)$$


$$= 100 \times 33 + 100 \times 7$$

$$= 3300 + 700$$

$$= 4000$$