

# 1. NUMBERS

## IMPORTANT FACTS AND FORMULAE

**I..Numeral** : In Hindu Arabic system, we use ten symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 called **digits** to represent any number.

A group of digits, denoting a number is called a **numeral**.

We represent a number, say 689745132 as shown below :

Ten Crores ( $10^8$ )	Crore s( $10^7$ )	Ten Lacs (Millions ) ( $10^6$ )	Lacs( $10^5$ )	Ten Thous ands ( $10^4$ )	Thou sands ( $10^3$ )	Hundr eds ( $10^2$ )	Ten s( $10^1$ )	Uni ts( $10^0$ )
6	8	9	7	4	5	1	3	2

We read it as : 'Sixty-eight crores, ninety-seven lacs, forty-five thousand, one hundred and thirty-two'.

### II Place Value or Local Value of a Digit in a Numeral :

In the above numeral :

Place value of 2 is  $(2 \times 1) = 2$ ; Place value of 3 is  $(3 \times 10) = 30$ ;

Place value of 1 is  $(1 \times 100) = 100$  and so on.

Place value of 6 is  $6 \times 10^8 = 600000000$

**III.Face Value** : The **face value** of a digit in a numeral is the value of the digit itself at whatever place it may be. In the above numeral, the face value of 2 is 2; the face value of 3 is 3 and so on.

### IV.TYPES OF NUMBERS

**1.Natural Numbers** : Counting numbers 1, 2, 3, 4, 5,..... are called **natural numbers**.

**2.Whole Numbers** : All counting numbers together with zero form the set of **whole numbers**. Thus,

(i) 0 is the only whole number which is not a natural number.

(ii) Every natural number is a whole number.

**3.Integers** : All natural numbers, 0 and negatives of counting numbers *i.e.*,  $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$  together form the set of integers.

(i) **Positive Integers** :  $\{1, 2, 3, 4, \dots\}$  is the set of all positive integers.

(ii) **Negative Integers** :  $\{-1, -2, -3, \dots\}$  is the set of all negative integers.

(iii) **Non-Positive and Non-Negative Integers** : 0 is neither positive nor negative. So,  $\{0, 1, 2, 3, \dots\}$  represents the set of non-negative integers, while  $\{0, -1, -2, -3, \dots\}$  represents the set of non-positive integers.

**4. Even Numbers** : A number divisible by 2 is called an even number, e.g., 2, 4, 6, 8, 10, etc.

**5. Odd Numbers** : A number not divisible by 2 is called an odd number. e.g., 1, 3, 5, 7, 9, 11, etc.

**6. Prime Numbers** : A number greater than 1 is called a prime number, if it has exactly two factors, namely 1 and the number itself.

Prime numbers upto 100 are : 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.