

## STUDY COURSE MATERIAL

### MATHEMATICS

SESSION-2020-21

CLASS-VI

## TOPIC: NUMBER SYSTEM

### DAY-1

#### ❖ TEACHING MATERIAL

#### \*Explanation of Digits, Numbers and Hindu Arabic System\*

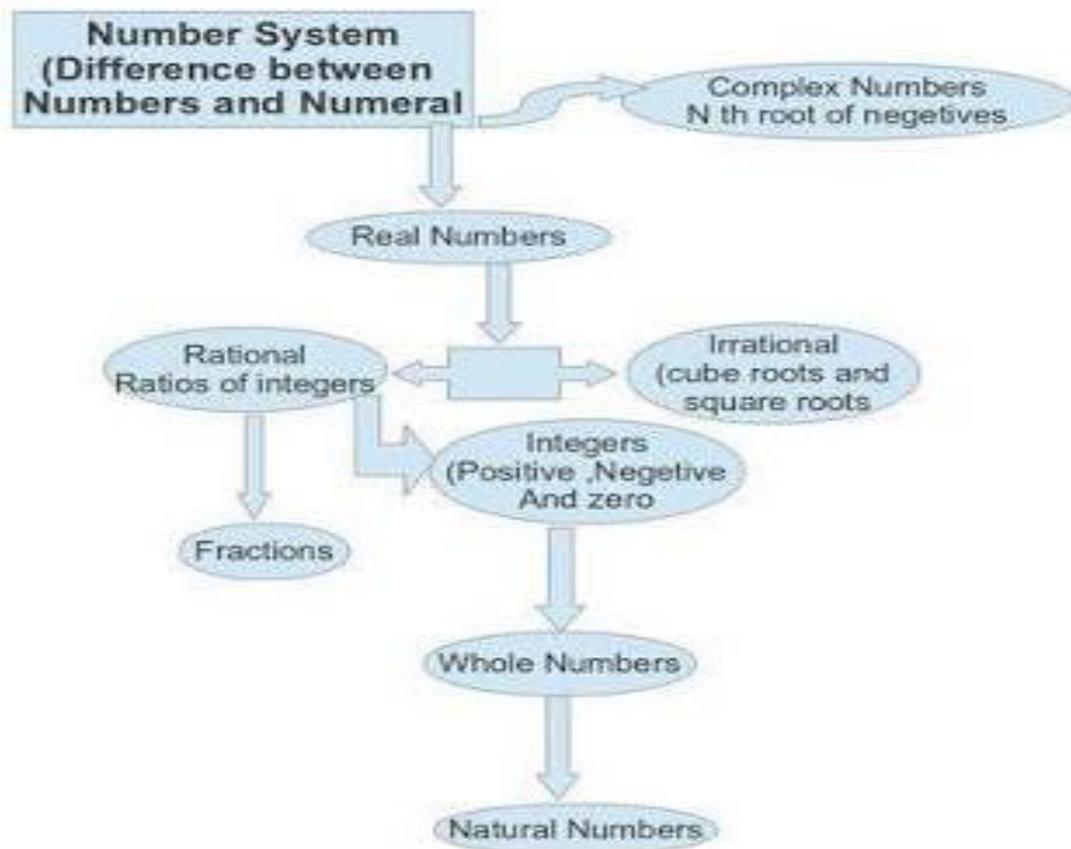
- Numbers are made up of digits.
- Numbers are written by using the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.
- The numbers 0- 9 are 1- digit numbers, 10-99 are 2 - digit numbers, 100 - 999 are 3 - digit numbers, and so on.
- Indian Place Value System

Crores		Lakhs		Thousands		Ones		
Ten Crores (TC) (10,00,00,000)	Crores (C) (1,00,00,000)	Ten Lakhs (TL) (10,00,000)	Lakhs (L) (1,00,000)	Ten Thousands (TTh) (10,000)	Thousands (Th) (1000)	Hundreds (H) (100)	Tens (T) (10)	Ones (O) (1)
			3	5	6	2	4	5

### Separating Periods in Indian System

**(Crores), ( lakhs), ( Thousands), ( Hundreds + tens + Ones)**

- ✚ The place value of a digit in a number depends upon its position in the place value chart.
- ✚ The face value of a digit in a number is the value of the digit itself.



## Number system – The History

Thousands of years ago the Romans used Abacus and stone tokens were also used to denote numbers but with the passage of time and trade advancements, the need for bigger denominations was felt. This led to the number systems of today.

Bigger numbers became necessary to measure the distance between the earth and the moon, the speed of light, the size of a microorganism. Hence the need to expand our number systems. Thus, the concept of numbers and digits was introduced.

### Single digit numbers

Counting small numbers is very easy. The smallest single digit number is 1 and the greatest is 9.

### Two digit numbers

However, for counting the number of buildings or general stores in a locality we must use numbers of two digits. When we add a single unit to the greatest one digit number we get the smallest two digit number.

$$1+9 = 10$$

The smallest two digit number is 10 and the greatest two digit number is 99.

10  
|    ones  
|  
tens

### Three digit numbers

But suppose a hall is filled with hundreds of concertgoers. In this case, we might have to use three digit numbers. When we add a single unit to the greatest two digit number we get the smallest three digit number.

$$1+99 = 100$$

The smallest three digit number is 100 and the greatest is 999.

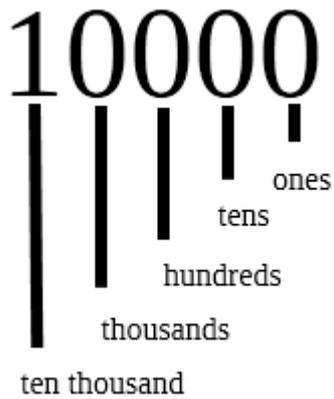
100  
|    |    |    ones  
|    |    |  
|    |    |    tens  
|  
hundreds

### Four and five digit numbers

Similarly, when we add one unit to the greatest three digit number we get the smallest four digit number.

$$1+999 = 1000$$

In a similar way the smallest four digit number is 1000 and the greatest is 9999 and the smallest five digit number is 10000 and the greatest five digit number is 99999.



### Related Questions

- 1) Write 756432908 separating periods
- 2) Separate the periods of the numeral 98765043 by commas and write it in words.
- 3) Find the difference of the place values of the two 7s in 75,82,10,764
- 4) Write the numeral of each of the following
  - a) Seven lakh seven
  - b) Eighty crore three lakh four thousand five

### VIDEO-LINKS

LINK-1

<https://youtu.be/4jBPAw7UuGE>

LINK-2

[https://youtu.be/kts\\_G\\_UX1P4](https://youtu.be/kts_G_UX1P4)

LINK-3

<https://youtu.be/LesxtLeOBGM>

# DAY-1

## ❖ TEACHING MATERIAL : - EXPLANATION OF INTERNATIONAL PLACE VALUE SYSTEM

Millions			Thousands			Ones		
Hundred Million	Ten Million	Million	Hundred Thousands	Ten Thousands	Thousands	Hundred	Tens	Ones
100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1

### The International numeral system

The place values of the digits are in the sequence of Ones, Tens, Hundreds, Thousands, Ten Thousand, Hundred Thousand, Millions, Ten Million in the international numeral system. For example, the number 20, 450, 988

8 – Ones

8 – Tens

9– Hundreds

0– Thousands

5 – Ten Thousand

4– Hundred Thousand

0 – Millions

2 – Ten Million

## Related Questions

- 1) Write the number name of each in the International System.
  - a. a) 735, 831      b) 90, 703, 006
- 2) Write each of the following figures in the International place value chart:-
  - a) fifty million five hundred five
  - b) Seven million seven thousand seven hundred seven.

## ❖ VIDEO-LINKS

[https://youtu.be/Vh\\_6vy3HeYI](https://youtu.be/Vh_6vy3HeYI)

## DAY-3

### ❖ TEACHING MATERIAL : - COMPARISON OF NUMBERS AND WORD PROBLEMS ON NUMBER OPERATIONS

- ★ Rule 1 . The number with less digits is less than the number with more digits.
- ★ Rule 2. Suppose we have to compare two numbers having the same number of digits then we proceed the following steps
  - Step 1 . First compare the digits at the leftmost place in both the numbers.
  - Step 2. If they are equal in value then compare the second digits from the left.
  - Step 3. If the second digits from the left are equal then compare the third digits from the left.
  - Step 4 . Continue until you come across unequal digits at the corresponding places. Clearly, the number with greater such digit is the greater of the two.

## Related Questions

- 1) Arrange the following numbers in ascending numbers.
  - a. 3763214 , 18340217 , 984672 , 3790423 , 18431056
- 2) The difference between two numbers is 9476583. If the smaller number is 6873547, find the greater number.
- 3) The cost of a steel almirah is ₹ 22875. What is the cost of 465 such almirahs

- 4) The mass of each gas cylinder is 16 kg 250 g. What is the total mass of 18 such cylinders.

### ❖ VIDEO-LINKS

<https://youtu.be/DXQKPWHHt4w>

[https://youtu.be/8gu49FD0\\_6E](https://youtu.be/8gu49FD0_6E)

## DAY-4

### ❖ TEACHING MATERIAL : - ESTIMATION

#### Estimation

Estimation is an integral aspect of mathematics. Though approximation is not a good way and we often need to know the exact number estimation techniques like rounding off to the nearest number is often used in mathematical problems.

The rule states if a digit to the right of the digit one wants to estimate is less than 5 then you round down, but if it is greater than 5, one must participate in rounding up. For example, 4.2 may be written as 4.5 and 4.6 may be rounded to 4.7.

You can also estimate the tenth-place digit or the second one to the left of the decimal. For example, 247 may be rounded off to 250 and 243 may be rounded to 240.

#### Round off rules



For eg..

### Estimating Differences

$52,187 - 18,978$

$50,000 - 20,000 = 30,000$

The actual answer is 33,209, so our estimation is pretty accurate.

<b>Step 1:</b> Rounding is always first. Decide which place to round to.	<b>Step 2:</b> Round each addend to the ten thousands place.	<b>Step 3:</b> Now you can subtract 20,000 from 50,000, mentally.
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### ✚ Related questions:-

- 1) Round each of the following numbers to the nearest ten thousand.  
a. a) 17524    b) 26340    c) 272685
- 2) Estimate each sum to the nearest ten:-  
a. a) ( 57 + 34)    b) ( 463 + 182)
- 3) Estimate each difference to the nearest hundred  
a. a) ( 678 - 215)    b) ( 7258 - 2429)

## DAY-5

### ❖ TEACHING MATERIAL : - ESTIMATE THE PRODUCTS AND QUOTIENTS

- 1) Estimate each of the following products by rounding off each number to the nearest ten.  
a. a)  $38 \times 63$     b)  $15 \times 34$
- 2) Estimate each of the following products by rounding off each number to the nearest hundred.  
a. a)  $376 \times 223$     b)  $271 \times 339$
- 3) Find the estimated quotient for each of the following.  
a. a)  $633 \div 33$     b)  $725 \div 23$     c)  $858 \div 39$

## ❖ VIDEO-LINKS

<https://youtu.be/r58pCGo8UrU>

## ❖ REVISION WORKSHEET

[https://drive.google.com/file/d/16Tqv6Klohmc\\_K\\_jjsh-RThZOHMpcYo01/view?usp=sharing](https://drive.google.com/file/d/16Tqv6Klohmc_K_jjsh-RThZOHMpcYo01/view?usp=sharing)