Chapter- 2

Numbers

STUDY NOTES

LEARN ABOUT:

- **Introducing lakh and crore**
- **Indian number system**
- **International number system**
- **Bigger numbers on abacus**
- **Place value and face value**
- **Expanded form and short form**
- **Successor and predecessor**
- **Comparison of numbers, ascending and descending**
- **Formation of numbers using given digits**

INTRODUCING LAKHS AND CRORE:

We get 1 lakh = 99,999 + 1 = 1,00,000.

1,00,000 is the smallest 6-digit number.

9,99,999 is the greatest 6-digit number.

(Note: 10 ones = 1 Ten, 10 hundreds = 1 Thousand, 10 tens = 1 Hundred, 10 thousands = 1 Ten thousand, 10 ten thousands = 1 Lakh)

We get 10 lakh = 9,99,999 + 1 = 10,00,000 (Ten lakh)

10,00,000 is the smallest 7-digit number.

99,99,999 is the greatest 7-digit number.

We get one crore = 99,99,999 + 1 = 1,00,00,000 (One crore)

(Note: Numbers are infinite.)

INDIAN NUMBER SYSTEM:

INDIAN SYSTEM

Period	Crores		Lakhs		Thousands		Ones		
Place Value	Ten crores	Crores	Ten Lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones
Numbers									
One									1
Ten								1	0
1 Hundred							1	0	0
1 Thousand						1,	0	0	0
10 Thousand					1	0,	0	0	0
1 Lakh				1,	0	0,	0	0	0
10 Lakh			1	0,	0	0,	0	0	0
1 Crore		1,	0	0,	0	0,	0	0	0
10 Crore	1	0,	0	0,	0	0,	0	0	0

To read large numbers easily, we follow the **Indian number system**. Here, places are grouped in periods. While writing, we separate the periods and insert commas between them.

**(Note: Ones, tens and hundreds places are grouped as ONES PERIOD.
Thousands and ten thousands places are grouped as THOUSANDS PERIODS.
Lakhs and ten lakhs places are grouped as LAKHS PERIOD.
Crores and ten crores places are grouped as CRORES PERIOD.)**

Common error – Lakhs period (✓), Lakh period (×)

In Indian number system,

One's period – First 3 digits

Thousand's period – Next 2 digits

Lakh's period – Next 2 digits

Crore's period – Digits after lakhs

EXAMPLE-1

Write the period and place value of '5' in 6,56,789 according to Indian number system.

SOLUTION-

Lakhs period	**Thousands period**		**Ones period**		
L	**TTh**	**Th**	**H**	**T**	**O**
6	**5**	**6**	**7**	**8**	**9**

Period of 5 = Thousands period

Place value of 5 = 50,000

INTERNATIONAL NUMBER SYSTEM:

INTERNATIONAL SYSTEM

Period	Millions			Thousands			Ones		
Place Value	Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Numbers									
One									1
Ten								1	0
1 Hundred							1	0	0
1 Thousand						1,	0	0	0
10 Thousand					1	0,	0	0	0
100 Thousand				1,	0	0,	0	0	0
1 Million			1	0,	0	0,	0	0	0
10 million		1,	0	0,	0	0,	0	0	0
100 million	1	0,	0	0,	0	0,	0	0	0

One's period – First 3 digits
Thousand's period – Next 3 digits
Million's period – Next 3 digits

(Note: In International place value system, 10 lakh = 1 million, 1 crore = 10 million, 10 crore = 100 million)

EXAMPLE-2

Separate the periods of 7622586 by putting commas according to the International number system.

SOLUTION-

Millions period	Thousands period			Ones period		
M	HTh	TTh	Th	H	T	O
7	6	2	2	5	8	6

Ans- 7,622,586

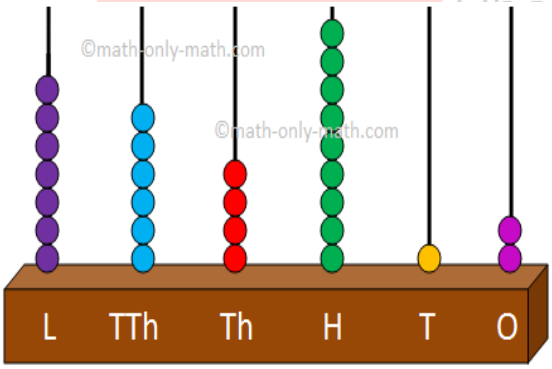
BIGGER NUMBERS ON ABACUS:

To read a given number, we first put the commas marking the periods. We already represented 4-digit and 5-digit number in abacus in previous class.

Representing 6- and 7-digit numbers in abacus, we have to make 2 more bars in the left side of ten thousand place.

(Note: Left of ten thousand place is Lakhs place
Left of lakhs place is ten lakhs place and left of ten lakhs place is crores place.)

EXAMPLE-3



Read and write the numeral and the number name of corresponding to the numbers as shown on the abacus.

SOLUTION-

Numeral is 7,64,912.

Number name is Seven lakh sixty four thousand nine hundred twelve.

PLACE VALUE AND FACE VALUE:

Face value of a digit is the digit itself. It doesn't depend on the position of the digit.

Place value of a digit is obtained by multiplying its face value by the value of the place in which the digit is kept.

(Note: Place value of zero is always zero.)

EXAMPLE-4

Write the place value and face value of '7' in 7,89,456.

SOLUTION-

Place value of 7 = 7,00,000

Face value of 7 = 7

EXPANDED FORM AND SHORT FORM:

In **expanded form**, a number is written as the sum of the place values of each of its digits.

The form in which we generally write the numbers is called the **short form**.

EXAMPLE-5

Write the expanded form of 4,65,012.

SOLUTION-

4,65,012 = 4 lakhs + 6 ten thousand + 5 thousands + 0 hundreds + 1 ten + 2 ones

= 4,00,000 + 60,000 + 5,000 + 0 + 10 + 2

(Note: Writing zero in expanded form is optional.)

EXAMPLE-6

Write 8,00,000 + 70,000 + 5,000 + 400 + 50 + 6

SOLUTION-

8,00,000 + 70,000 + 5,000 + 400 + 50 + 6 = 8,75,456

SUCCESSOR AND PREDECESSOR:

The number which is one more than the given number is called its **successor.**
The number which is one less than the given number is called its **predecessor.**

EXAMPLE-7

Write the successor and predecessor of 9,89,765.

SOLUTION-

Successor of 9,89,765 = 9,89,765 + 1 = 9,89,766
Predecessor of 9,89,765 = 9,89,765 – 1 = 9,89,764

COMPARISON OF NUMBERS:

EXAMPLE-8

Compare the numbers.
6,32,876 and 6,32,678

SOLUTION-

Lakhs period	Thousands period		Ones period		
L	TTh	Th	H	T	O
6	3	2	8	7	6
6	3	2	6	7	8

Digits in hundreds place are different.
Since 8 > 6, so 6,32,876 > 6,32,678.

ASCENDING AND DESCENDING-

Arranging numbers in order from the smallest to the largest number is called **ascending order.**
Arranging numbers in order from the largest to the smallest number is called **descending order**.

EXAMPLE-9

Arrange 1,34,747 2,85,967 1,43,564 2,85,769 in ascending order.

SOLUTION-

1,34,747 < 1,43,564 < 2,85,769 < 2,85,967.

FORMATION OF NUMBERS USING GIVEN DIGITS:

EXAMPLE-10

Form the greatest and smallest 6-digit number using 2, 0, 5, 7, 3, 9 (use each digit only once).

SOLUTION-

Greatest 6-digit number- 9,75,320.
Smallest 6-digit number- 2,03,579.

Common error- 0,23,579 (×), 2,03,579 (✓).

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