

MATH



CHAPTER 2: LARGE NUMBERS

LARGE NUMBERS

This lesson will help you to:

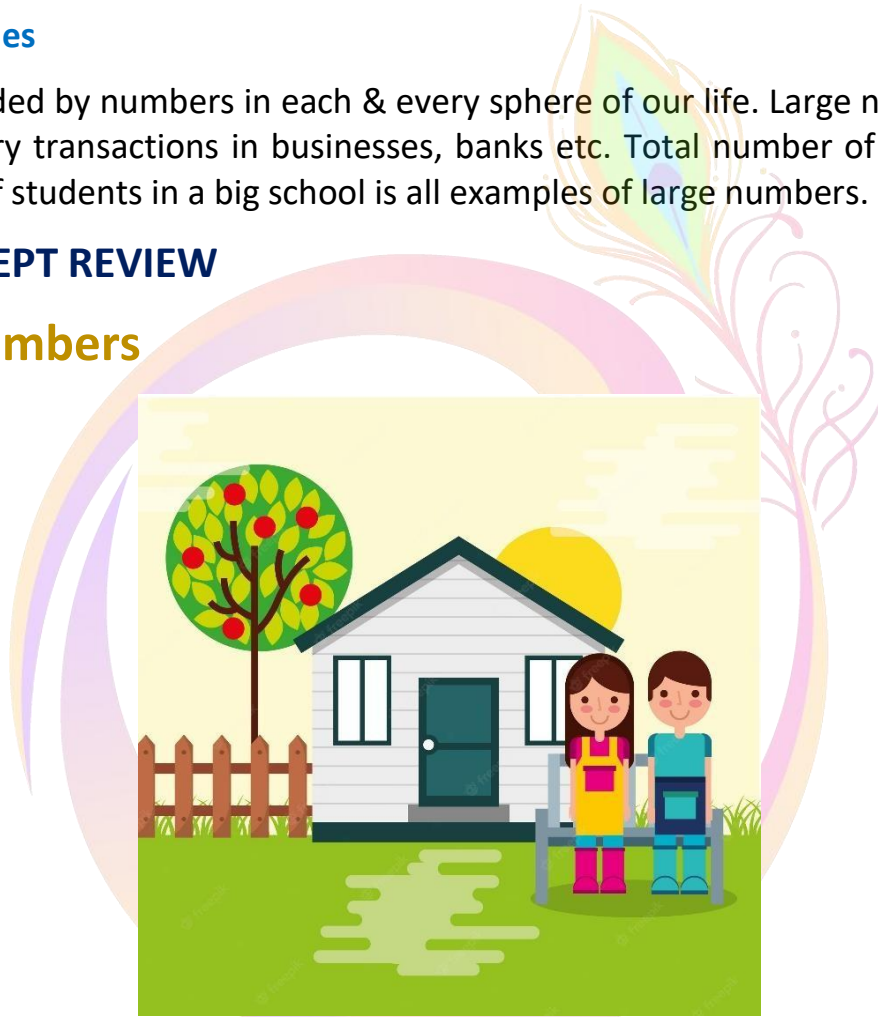
- be able to recognize & learn numbers larger than lakh.
- be able to understand the place value chart.
- be able to identify ten lakh.
- be able to understand the real life applications of large numbers.

Real Life Examples

We are surrounded by numbers in each & every sphere of our life. Large numbers are often used in monetary transactions in businesses, banks etc. Total number of schools in a city, total numbers of students in a big school is all examples of large numbers.

QUICK CONCEPT REVIEW

➤ Large Numbers



A census officer visited Rohan's home. He was confused why she is asking so many questions. He was really curious & asked his father all about census. His father told him that census is the process to count & record all the information of the population of a country.

Rohan says that population of the whole country must be a very big number. His father told him that for this you will have to learn about large numbers.

Let us all learn about large numbers.

Let us have a look at the table given below:

Number	Read As
1	One
10	Ten
100	One hundred
1000	One thousand
10000	Ten thousand
100000	One lakh
1000000	Ten lakh
10000000	Crore
100000000	Ten Crore

The numbers given in the above table are based on the Indian system of numeration. As the number increases it becomes larger and larger.

❖ 6 DIGIT NUMBERS

We know that 99,999 is the greatest 5 digit number. If we add 1 to it, we will get the smallest 6 digit number.

❖ Place Value

The place value of a 6 digit number is Lakhs in the place value chart.

Have a look at the place value chart given below:

Lakhs Period		Thousands Period		Ones Period	
Lakhs	Ten thousands	Thousands	Hundreds	Tens	Ones
5	4	7	2	8	3

The place value chart has been separated into three groups:

"The ones period has three places - Hundreds, tens & ones.

The thousands period has two places – Ten thousands & thousands.

❖ Amazing Facts

- Sometimes instead of using commas, we can leave spaces between periods. This helps to read a number easily & quickly.
- Abacus is considered the origin of the calculator.
- The largest 1 digit number is 9.
- The largest 9 digit number is 999999999.

- The smallest 1 digit number is 1.
- The smallest 9 digit number is 100000000.

Next period is the lakhs period which includes - Ten lakhs & lakhs.

But we will learn ten lakhs in higher classes.

❖ Use of Comma

If we write the number without using the place value chart, we use comma to separate the periods.

Let us consider an **example: 5, 47, 283**

Here, First comma is used when the ones period is complete.

Second comma is used when thousands period is complete.

Next comma is used to separate thousands and lakhs period.

❖ ACITIVITY TIME

Put commas to separate the periods;

- 435362
- 326483
- 210002

Reading a 6 digit number; 5, 47, 283

We read a 6 digit number as mentioned below:

Five lakhs forty seven thousands two hundred eighty three.

Read the following numbers:

- 6, 47, 393
- 8, 72, 282

Expanded notation: 5, 47, 283

Let us learn to write a number in its expanded notation form. Look at the table given below:

5	4	7	2	8	3
1 00 000	10 000	1000	100	10	1
1 00 000	10 000	1000	100	10	1

1 00 000	10 000	1000				10		1
1 00 000	10 000	1000				10		
1 00 000		1000				10		
		1000				10		
		1000				10		
						10		
						10		

This table can be summarized as follows;

$$500000 + 40000 + 7000 + 200 + 80 + 3$$

Synopsis

- The ten digits in the number system are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.
- 0 is the smallest 1 - digit number and 9 is the largest 1 -digit number.

No. of digits	Smallest Counting Number	Largest Counting Number
1	1	9
2	10	99
3	100	999
4	1000	9999
5	10000	99999
6	100000	999999

❖ Place Value Chart:

Lakhs Period		Thoudands periods		Ones period		
Ten lakhs	Lakhs	Ten Thousands	Thousands	Hundreds	Tens	Ones

10 ones	= 1 ten
10 tens	= 1 hundred
10 hundreds	= 1 thousands
10 thousands	= 1 ten thousands
10 ten thousands	= 1 lakh

10 lakhs	= 1 ten lakh
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- While writing large numbers, the digits of each period are separated using a comma. g., 694537 is written as 6, 94, 537.

Lakhs period		Thousand period			Ones period	
TL	L	T. Th	Th	H	T	O
	6	9	4	5	3	7

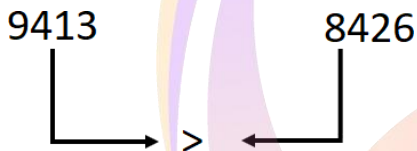
- Place value of a digit is the product of the digit and its place. (Position in the place value chart.) e.g., In the place value of 9 is as 9 is in the ten thousands place.
- Face value of a number is the value of the number itself. e.g., In the face value of 5 is 5 and not 500.

❖ Rules for comparison of numbers:

Rule 1: A numeral with more digits is greater. e.g.,

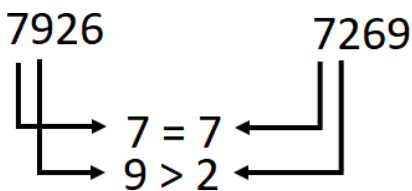
Rule 2: If two numbers have the same number of digits, the numeral having the greater digit at the leftmost place is greater.

e.g.,



∴ $9413 > 8426$

Rule 3: If the leftmost digits of the given numbers are the same, consider the next digit from the left and compare. The number with the greater digit in this place is greater. e.g.,



∴ $7926 > 7269$

❖ Ordering of numbers:

(a) Ascending order: The numbers arranged from the least to the largest are said to be in ascending order.

e.g., 2093, 5146, 7001, 8965, 9900 are in ascending order.

(b) Descending order: The numbers arranged from the largest to the least are said to be in descending order.

e.g. 9900, 8965, 7001, 5146, 2093 are in descending order.

❖ Estimation:

Rounding numbers to get their approximate values to a specified level of approximation is called estimation.

We use the approximation sign to stand for "approximately equal to". The estimated value is different from the actual value.

The best estimate is the one in which the difference between the estimated value and the actual value is the least.

❖ Rounding numbers:

Place to which a number is to be estimated	Place of the digit to be considered	Value of the digit considered	What must be done	Examples
10	Ones	0-4	Replace ones digit with 0	so, 23 rounded to the nearest 10 is 20.
		5-9	Replace ones digit with 0. Add 1 to tens digit .	So, 142 rounded to the nearest 100 is 100
100	Tens	0-4	Replace ones and tens digits with 0.	So, 142 rounded to the nearest 100 is 100.
		5-9	Replace ones digit with 0. Add 1 to hundred digit.	So, 161 rounded to the nearest 100 is 200

1000	Hundreds	0-4	Replace ones, tens and hundreds digits with 0.	So, 3234 rounded to the nearest 1000 is 3000.
		5-9	Replace one, tens and hundreds digits with 0. Add 1 to thousands digit.	So, 35.9 rounded to the nearest 1000 is 4000.

Rules for rounding off numbers:

- (i) While rounding off numbers, it is important to note the place value which has to be rounded off.
- (ii) Look at the digit that is after the digit in that place value.
- (iii) If the digit is greater than or equal to 5, we round up the number.
- (iv) If the digit is lesser than 5, we round down the number.

Questions:

1. Find the smallest 6 - digit number formed by using the digits 2, 0, 4, 5, 7 and 1.

- (a) 021457
- (b) 210457
- (c) 102457
- (d) 120457

2. Find the greatest 5-digit number formed using the digits 3,9,4,8 and 5.

- (a) 98543
- (b) 95834
- (c) 55555
- (d) 59843