CLASS – 6
SUBJECT – MATHEMATICS
CHAPTER:1:KNOWING OUR NUMBERS

What are Natural numbers?

Counting numbers 1,2,3,4,….. etc. are called Natural numbers. The smallest natural number is 1 and there is no largest natural number.

What are Whole numbers ?

0,1,2,3,4,….. etc. are called Whole numbers. The smallest whole number is 0 and there is no largest whole number.

Comparing Numbers

1. **Compare 4978 and 5643…….**

5643 is greater as the digit at the thousands place in 5643 is greater than that in 4978.

2. Compare 9364,8695,8402 and 7924

9364 is the greatest as it has the greatest digit at the thousands place in all the numbers.

Whereas 7924 is the smallest as it has the smallest digit at the thousands place in all the numbers.

3. Special case

Compare 56321 and 56843

Here, we will start by checking the thousands place. As the digit 5 at ten thousand place is same so we will move forward and see the thousands place. The digit 6 is also same so we will still move on further to check the hundreds place.

The digit at the hundreds place in 56843 is greater than that in 56321

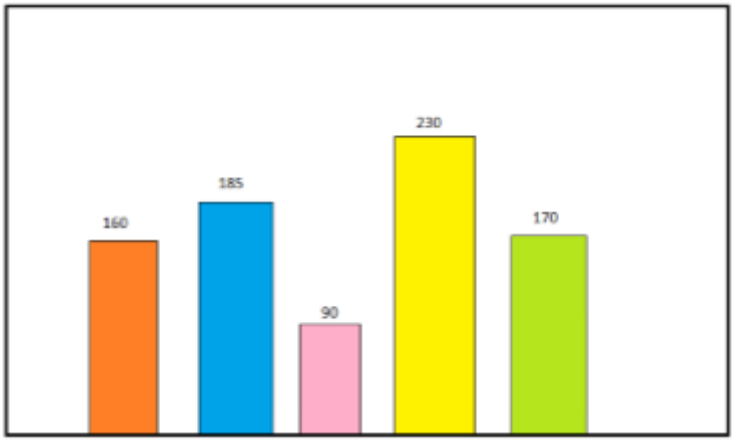
Thus 56843 is greater than 56321

Proper Order

- If we arrange the numbers from the smallest to the greatest then it is said to be an ***Ascending order***.
- If we arrange the numbers from the greatest to the smallest then it is said to be ***Descending order***.

Example

Arrange the following heights in ascending and descending order.



Ascending order – 90 < 160 < 170 < 185 < 230

Descending order – 230 >185 >170 > 160 > 90

Number Formations

Form the largest and the smallest possible numbers using 3,8,1,5 without repetition

Largest number will be formed by arranging the given numbers in descending order – 8531

The smallest number will be formed by arranging the given numbers in ascending order – 1358

Example:2:

Form the largest and the smallest 4- digit numbers using 2 ,9,0,1

Answer: The smallest number is 1029

The largest number is 9210

Introducing 10,000

99 is the greatest 2-digit number.

999 is the greatest 3-digit number

9999 is the greatest 4-digit number

- If we add 1 to the greatest 3- digit number then we get the smallest 4-digit number

(999 + 1 = 1000)

- **If we add 1 to the greatest 4-digit number then we get the smallest 5-digit number**

  (9999 + 1 = 10000)

Introducing 1,00,000

As above pattern if we add 1 to the greatest 5-digit number then we will get the smallest 6-digit number

(99,999 + 1 = 1,00,000)

This number is called ***one lakh***.

Larger Numbers

To get the larger numbers also, we will follow the same pattern.

We will get the smallest 7-digit number if we add one more to the greatest 6-digit number, which is called ***Ten Lakh***.
Going forward if we add 1 to the greatest 7-digit number then we will get the smallest 8-digit number which is called ***One Crore***.
Example:1
How many hundreds make one lakh?
Ans: 100000
1000 hundreds make one lakh
Example:2
How many lakhs make one crore?
Ans: 1crore = 10000000
100 Lakhs make one crore

Indian system of numeration

Values of the places in the Indian system of numeration are Ones, Tens, Hundreds, Thousands, Ten thousands, Lakhs, Ten Lakhs, Crores and so on.

Example

5,46,851 = 5 × 1,00,000 + 4 × 10,000 + 6 × 1,000 + 8 × 100 + 5 × 10 +1 × 1
This number has 1 at one's place, 5 at tens place, 8 at hundreds place, 6 at thousands place, 4 at ten thousands place and 1 at lakh place.
Number Name are also written based on the place value name. So Its number name is Five lakh forty-six thousand eight hundred fifty-one.

Use of Commas

Commas added to numbers help us read and write large numbers easily. As per Indian Numeration, Commas are used to mark thousands, lakhs and crores. The first comma comes after hundreds place (three digits from the right) and marks thousands. The second comma comes two digits later (five digits from the right). It comes after ten thousand place and marks lakh. The third comma comes after another two-digits (seven digits from the right). It comes after ten lakh place and marks crore

Examples
1, 08, 01, 992
2, 32, 40, 581
3, 17, 05, 062

International system of numeration

Values of the places in the International system of numeration are Ones, Tens, Hundreds, Thousands, Ten thousands, Hundred thousands, Millions, Ten millions and so on.
1 million = 1000 thousands,
1 billion = 1000 millions

Use of Commas

As per International Numeration, Commas are used to mark thousands and millions. It comes after every three digits from the right. The first comma marks thousands and the next comma marks millions. For example, the number 10,101,592 is read in the International System as tem million one hundred one thousand five hundred ninety-two. In the Indian System, it is 1 crore one lakh one thousand five hundred ninety-two.

Estimation

It is a rough calculation of value. We use estimations when we have to deal with large numbers and to do the quick calculations.

Estimating to the nearest tens by rounding off

1. 73<u>8</u> – 740
2. 109<u>3</u> – 1090
3. 89<u>5</u> – 900

Estimating to the nearest hundreds by rounding off

1. 649 – 600
2. 1195 – 1200
3. 651 – 700

Estimating to the nearest thousands by rounding off

1. 1432 – 1000
2. 85098 – 85000
3. 9555 – 10000

To estimate sum or difference

Estimate: 3,210 + 12,884

Solution

3,210 will be rounded off to 3000.

12,884 will be rounded off to 13000.

3000 + 13000

Estimated solution = 16000

Actual solution = 3,210 + 12 884

= 16,094

To estimate products

Estimate: 73 × 18

Solution

73 will be rounded off to 70

18 Will be rounded off to 20

70x20

Estimated solution = 1400

Actual solution = 73 × 18

=1314

Using Brackets

We use brackets to indicate that the numbers inside should be treated as a different number thus the bracket should be solved first.

Example

8 +(2 x 5) = 8 + 10 = 18

Whereas if we use brackets

(8 + 2) × 5 = 10 x 5 = 50

Expanding brackets

Brackets help in the systematic calculation.

Example

3 × 109 = 3 × (100 + 9)

= 3 × 100 + 3 × 9

= 300 + 27

= 327

Roman Numerals

Numbers in this system are represented by combinations of letters from the Latin alphabets.

1 =	I	40 =	XL
2 =	II	50 =	L
3 =	III	60 =	LX
4 =	IV	70 =	LXX
5 =	V	80 =	LXXX
6 =	VI	90 =	XC
7 =	VII	100 =	C
8 =	VIII	101 =	CI
9 =	IX	150 =	CL
10 =	X	200 =	CC
20 =	XX	500 =	D
21 =	XXI	800 =	DCCC
30 =	XXX	1000 =	M

I	V	X	L	C	D	M
1	5	10	50	100	500	1000

Rules:

a. If we repeat a symbol, its value will be added as many times as it occurs:

Example

II is equal 2

XX is 20

XXX is 30.

b. We cannot repeat a symbol more than three times and some symbols like V, L and D can never be repeated.

c. If we write a symbol of lesser value to the right of a symbol of larger value then its value will be added to the value of the greater symbol.

VI = 5 + 1 = 6, XII = 10 + 2 = 12 and LXV = 50 + 10 + 5 = 65.

d. If we write a symbol of lesser value to the left of a symbol of larger value then its value will be subtracted from the value of the greater symbol.

IV = 5 – 1 = 4, IX = 10 – 1 = 9 XL= 50 – 10 = 40, XC = 100 – 10 = 90.

e. The symbols V, L and D can never be subtracted so they are never written to the left of a symbol of greater value. We can subtract the symbol “I” from V and X only and the symbol X from L, M and C only.

St. Gregorios School, Dwarka

Class – 6 (Session 2020 – 21)

MATHEMATICS WORKSHEET – 1

1 Insert commas and write the number name according to Indian system of numeration.
   a) 3569085
   b) 42963

2 Write the place and place value of 3 in the following numbers.
   a) 1239650
   b) 46239

3 a) Add 1098, 26354 and 98
   b) Subtract 3965 from 11011

4 a) Find the product 368 x 25
   b) Find the quotient and remainder 3695 ÷ 15

5 A person bought 36 bicycles for RS 79,056. Find the cost of one bicycle.

6 Round off:
   a) 568 (to nearest hundreds)
   b) 11956 (to nearest thousands)

7 Write the Roman numerals:
   a) 98
   b) 55

8 Expand and find the solution: 42 x 108

9 Solve:
   a) 23 + XV = ……..
   b) 48 + ……. = C

(Hint: 5 + IV = IX

5 + 4 = 9)

10 Write the predecessor of the following numbers:

a) 990
b) 1000

11 Write the successor of the following numbers:

a) Smallest 2 – digit number
b) 1999

12 Find the smallest and the greatest 5 – digit numbers with these digits 1,9,0,5,2. Also find the sum and difference of the number formed.

13 A machine manufactures 195 screws in 1 day. Find the number of screws manufactured in the month of November.

14 Insert commas according to International system of numeration:

a) 4009856
b) 432569

15 Write the number name according to International system of numeration:

a) 40,985,325
b) 46,005

(Note: Solve these questions on A – 4 sized sheet)