CLASS: IV   **SUBJECT: MATHS**

Topic: Numbers and Numeration

Explanation

- Greatest 2-digit number   =   99

                                                 + 1
                                        _____
  Smallest 3-digit number   =   100
                                        _____

- Greatest 3-digit number   =   999

                                                 + 1
                                        _____
  Smallest 4-digit number   =   1000
                                        _____

- Greatest 4-digit number   =   9999

                                                 +   1
                                        _____
  Smallest 5-digit number   =   10000
                                        _____

- Greatest 5-digit number   =   99999

                                                 +   1
                                        _____
  Smallest 6-digit number   =   100000
                                        _____

Indian place value system

Periods	Lakhs		Thousands		Ones		
Place Value	TL	L	T Th	Th	H	T	O
	10,00,000	1,00,000	10,000	1,000	100	10	1

Indian place value system, also called the Hindu – Arabic system of numeration.

Seven places are grouped into 3 groups:

One period has three places – ones, tens, hundreds

Thousands period has 2 places – Thousands, ten thousands

Lakhs period has 2 places – Lakhs, ten lakhs

Example – While writing a number, we separate the periods by a comma (,).

a)   3463436 – Four lakh sixty three thousand four hundred thirty six.

b)   700302 – Seven lakh three hundred two.

Q.   Write the number names (in Indian System):

   a)   28,432   b)   9,05,612   c)   6,43,219   d)   7,00,819

Explanation

International place value chart

Millions				Thousands		Ones		
HM	TM	M	H th	T Th	Th	H	T	O
	10,000,00	1,000,000	100,000	10,000	1,000	100	10	1

In International place value system,

Nine places are grouped into 3 groups

Ones period has 3 places – ones, tens, hundreds

Thousands period has 3 places – Thousands, Ten Thousands, Hundred Thousands

Millions period has 3 places – Millions, The Millions, Hundred Millions

4,325,176 = four million three hundred twenty five thousand one hundred seventy six

Practice

I)   Write the number names in International System:

  a)   7,124,395   b)   413,296   c)   627,495   d)   6,235,197

II)   Write the numerals:

  a)   Two hundred forty five thousand three hundred sixty

  b)   Five million two hundred six thousand fifty

  c)   Seven hundred ten thousand one hundred forty

  d)   Six million one hundred four thousand thirty two

Face Value and Place Value

The face value of a digit is the value of the digit itself irrespective of its place in the number.

The place value of a digit depends on its position in the number.

Practice:

1)   Find the face value and place value of underlined digit:

  a)   1,4<u>5</u>,296   d)   <u>9</u>7,430

  b)   6<u>2</u>,457   e)   4,53,672

  c)   3,<u>5</u>4,531   f)   76,245

2)   Find sum of the place values of two 7s in 437258.

Explanation:

Expanded Notation of a Number

e.g. – 347, 298 = 300,000 + 40,000 + 7,000 + 200 + 90 + 8

    1,32,245 = 1,00,000 + 30,000 + 2,000 + 200 + 40 + 5

Practice

I)   Write the expanded form:

  a)   45,307   b)   1,34,259   c)   87,285   d)   70,342

II) Write the short form:

    a)   50,000 + 7,000 + 60 + 8

    b)   3,00,000 + 400 + 20 + 7

    c)   9,00,000 + 40,000 + 2,000 + 40 + 6

    d)   1,00,000 + 3,000 + 50 + 9

Successor and Predecessor of a number

The successor of a number is 1 more than the number.

    23450 + 1 = 23451

The predecessor of a number is 1 less than the number.

    34589 – 1 = 34588

Practice:

I)   Write the successor of:

    a)   76,348   c)   1,24,385

    b)   9,58,432   d)   4,35,240

II)   Write the predecessor of:

    a)   8,45,300   c)   1,00,000

    b)   67,000   d)   1,43,790

Comparison of Numbers:

a)   11,337 _____ 10,337   d)   4,37,580 _____ 4,48,590

b)   9,899 _____ 9,899   e)   1,23,250 _____ 1,22,150

c)   75,438 _____ 72,348   f)   15,487 _____ 15,485

Explanation:

Ascending and Descending Order:

Ascending order means arranging numbers from smallest to biggest.

Descending order means arranging numbers from biggest to smallest.

i)   43,235 ; 43,275 ; 43,250 ; 43,520

→   43,235 < 43,250 < 43,275 < 43,520

ii)   6,47,350 ; 6,74,530 ; 6,15,470, 6,18,250

→   6,74,530 > 6,47,350 > 6,18,250 > 6,15,470

Practice

1)   Arrange in ascending order:

    a)   20,480 ; 20,820 ; 20,028 ; 20,082

    b)   4,17,230 ; 4,17,320 ; 4,17,540 ; 4,17,218

2)   Arrange in descending order:

    a)   72,508 ; 72,950 ; 72,480 ; 72, 182

    b)   8,43,107 ; 8,39,206 ; 8,15,203 ; 8,17,328

Explanation:

Forming Numbers:

To write the smallest number using the given digits only once.

1, 4, 2, 0, 5 = 10245

To write the greatest number using the given digits only once, we simply arrange the digits in descending order.

3,4,1,7,9 = 97431

Practice:

I)   Write the smallest and greatest 4-digit numbers by using each digit only once.

a)   5,8,3,1   b)   4,0,3,9   c)   3,8,1,4

II)   Form the smallest 6-digit number using the digits 1,4,7,0,9 repeating 1 twice.

III)   Form the greatest 6-digit number using the digits 7, 5, 2, 6, 0 repeating 2 twice.

Explanation:

Rounding Numbers

- Rounding numbers are approximate numbers.
- To round off nearest tens always check ones place, whether it is greater than 5 or not.
- To round off nearest hundreds, check last two digits, whether it is greater than or equal to 50 or not.
- To round off nearest thousands, check last three digits, whether it is greater than or equal to 500 or not.

Practice:

I)   Round off to the nearest tens

a)   1736   b)   783   c)   587   d)   3487

II)   Round off to the nearest hundreds

a)   6254   b)   1285   c)   1846   d)   23467

III)   Round off to the nearest thousands

a)   12517   b)   7182   c)   10735   d)   98746

Roman Numerals

Explanation

The Romans used only seven symbols to form numbers.

Hindu-Arabic Numeral	1	5	10	50	100	500	1000
Roman Numeral	1	V	X	L	C	D	M

Rules for Writing Roman Numerals

- The symbols 1 and X can be used upto to three times in a number and the values are added.

- A roman numeral of smaller value written on the right of a roman numeral of greater value is added to the numeral of greater value is added to the numeral of greater value.

    VII = 5 + 1 + 1 = 7

    XII = 10 + 1 + 1 = 12

- A Roman numeral of smaller value written on the left of a roman numeral of greater value is subtracted from the numeral of greater value.

    IX = 10 – 1 = 9

    XL = 50 – 10 = 40

- V, L, D are never subtracted.

- X can be subtracted from L and C only once.

- When a roman numeral of smaller value is placed between two roman numerals of greater values, its value is always subtracted from the value of the symbol on its right.

    XIV   =   10 + (5-1)

           =   10 + 4

           =   14

Practice

I)   Write the roman numeral:

a)   45   d)   30

b)   78   e)   47

c)   94   f)   53

II)   Write the Hindu-Arabic numeral

a)   XIX   e)   LXIV

b)   XXXV   f)   LXX

c)   XLII   g)   XI

d)   XCVI   h)   XV

III) Write > , < or =

a)   LXV _____ 64   c)   XCVI _____ XCI

b)   LX _____ XL   d)   82 _____ LXXX

IV)   Write the answer in roman numerals:

a)   XXII + V = _____   d)   XXXV + II = _____

b)   LVI + IV = _____   e)   V + XI = _____

c)   C + V = _____