

# **SNS COLLEGE OF TECHNOLOGY**

**AN AUTONOMOUS INSTITUTION**

ACCREDITED BY NBA – AICTE AND ACCREDITED BY NAAC – UGC WITH ‘A’ GRADE  
APPROVED BY AICTE, NEW DELHI & AFFILIATED TO ANNA UNIVERSITY, CHENNAI

**COURSE NAME : 23GET275 VQAR-I**

**II YEAR /III SEMESTER**

**Unit 1- QUANTITATIVE ABILITY I**

**Topic 1 : Number theory- Shortcuts**

# UNIT I

## QUANTITATIVE ABILITY I

**Number theory- Shortcuts, Divisibility rule-** Unit place deduction-LCM &HCF, Square root and Cube Root, Decimal & Fraction Percentage, Profit, loss and discount, Simple and compound interest, Ratio & Proportions, Mixtures & Allegation, Partnership.



# Number Theory

- **Number System** – represent in different forms
- Hindu-Arabic system - 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 – **Digits**

Insignificant digit

Significant digits.

0

1 to 9



# Numerals

Cardinal Numbers		Ordinal Numbers	
1	one	1 <sup>st</sup>	first
2	two	2 <sup>nd</sup>	second
3	three	3 <sup>rd</sup>	third
4	four	4 <sup>th</sup>	fourth
5	five	5 <sup>th</sup>	fifth
6	six	6 <sup>th</sup>	sixth
7	seven	7 <sup>th</sup>	seventh
8	eight	8 <sup>th</sup>	eighth
9	nine	9 <sup>th</sup>	ninth
10	ten	10 <sup>th</sup>	tenth
11	eleven	11 <sup>th</sup>	eleventh
12	twelve	12 <sup>th</sup>	twelfth
13	thirteen	13 <sup>th</sup>	thirteenth
14	fourteen	14 <sup>th</sup>	fourteenth
15	fifteen	15 <sup>th</sup>	fifteenth
16	sixteen	16 <sup>th</sup>	sixteenth
17	seventeen	17 <sup>th</sup>	seventeenth
18	eighteen	18 <sup>th</sup>	eighteenth
19	nineteen	19 <sup>th</sup>	nineteenth
20	twenty	20 <sup>th</sup>	twentieth

1	I
2	II
3	III
4	IV
5	V
6	VI
7	VII
8	VIII
9	IX
10	X

11	XI
20	XX
30	XXX
40	XL
50	L
60	LX
70	LXX
80	LXXX
90	XC
100	C

200	CC
300	CCC
400	CD
500	D
600	DC
700	DCC
800	DCCC
900	CM
1000	M
1001	MI

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

# How to Write a Number?

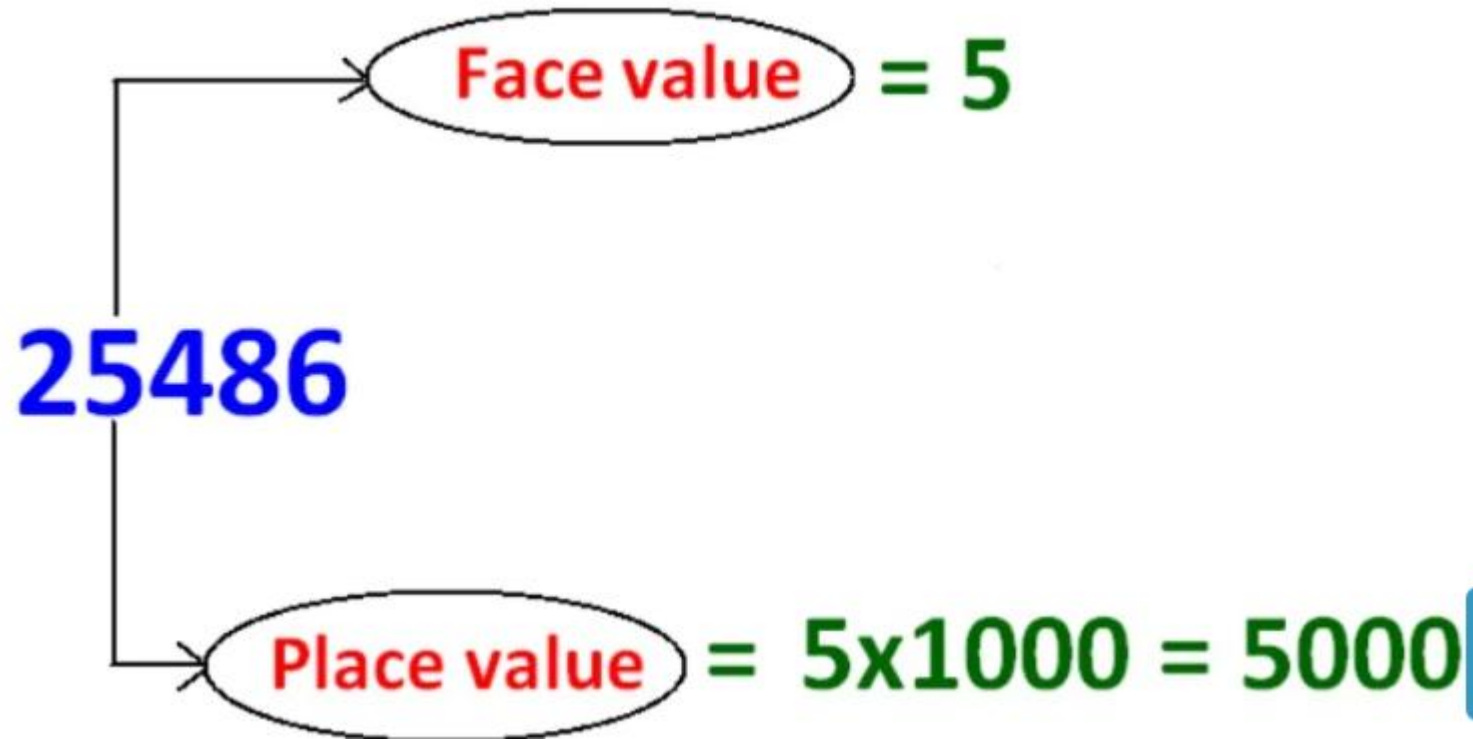
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Indian Place Value System								
CRORES		LAKHS		THOUSANDS		ONES		
TC	C	TL	L	T-TH	TH	H	T	O
		2	3	1	9	6	1	7

International Place Value Chart								
MILLIONS			THOUSANDS			ONES		
HM	TM	M	HTh	TTh	Th	H	T	O
		2	3	1	9	6	1	7

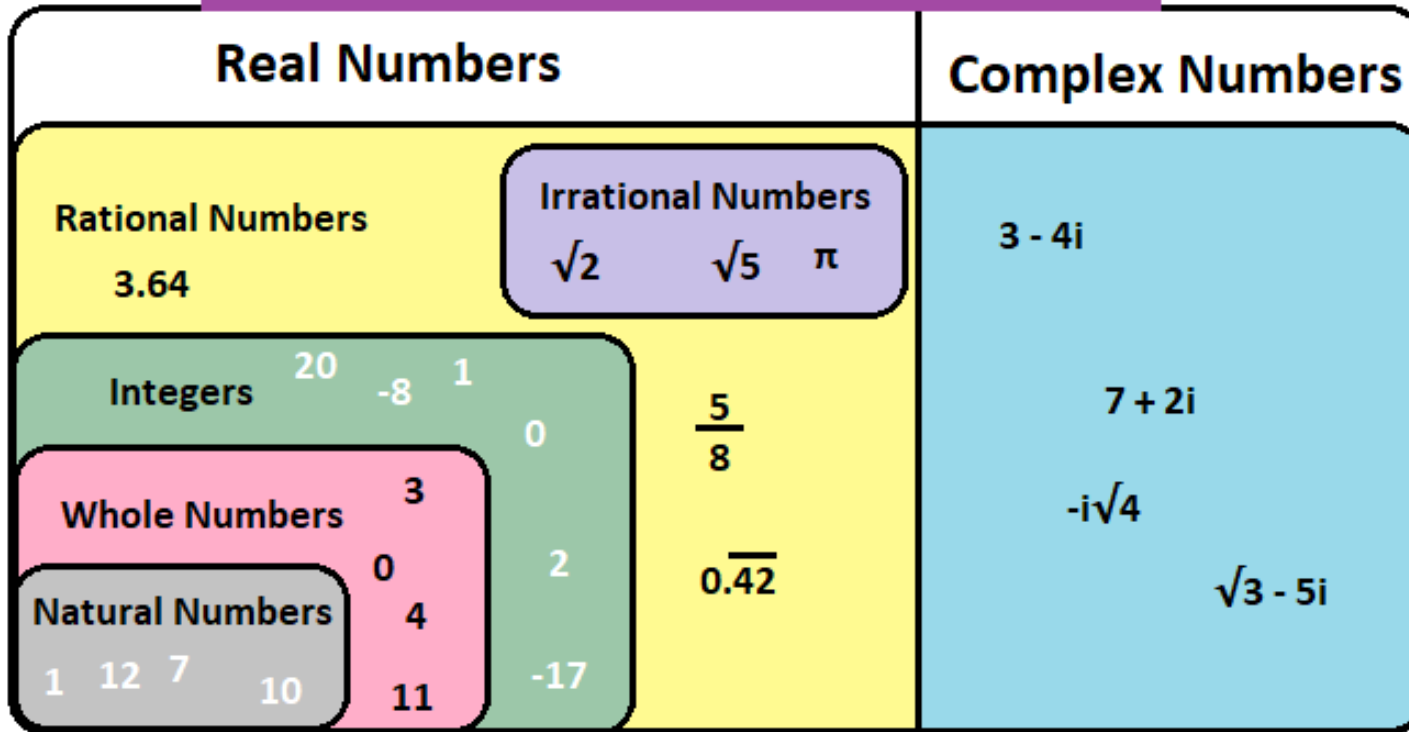


# Face Value and Place Value of the Digits in a Number



# Types of Numbers

## Classification of Numbers



- Even Numbers
- Odd Numbers
- Prime Numbers – 1 and itself
- Composite - non-prime natural number
- Coprimes - Two natural numbers & HCF is 1

Addition	+
Subtraction	-
Multiplication	x
Division	÷



# Number Theory and Shortcuts

1. Sum of natural numbers from 1 to n

$$\frac{n(n+1)}{2}$$

e.g Sum of natural numbers from 1 to 40 =  $40(40+1)/2 = 820$

2. Sum of squares of first n natural numbers is =

$$\frac{n(n+1)(2n+1)}{6}$$

3. Sum of the squares of first n even natural numbers is

$$\frac{2}{3}n(n+1)(2n+1)$$



# Number Theory and Shortcuts

4. Sum of cubes of first n natural numbers is

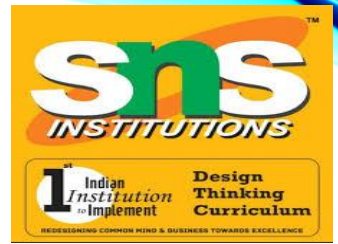
$$\left[ \frac{n(n+1)}{2} \right]^2$$

5. Any number N can be represented in the decimal system of number as

$$N = n_k 10^k + n_{k-1} 10^{k-1} + n_{k-2} 10^{k-2} + \dots + n_i 10^i + n_0$$



<https://www.indiabix.com/aptitude/numbers/001002>



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# Summary



**sns**  
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*Thank You*