NUMBERS

TYPES OF NUMBERS

FOLLOWING ARE THE DIFFERENT SUB-TOPICS UNDER "TYPES OF NUMBERS":

- **NATURAL NUMBERS**
- **INTEGERS**
- **PRIME NUMBERS**
- **SQUARE NUMBERS**
- **CUBE NUMBERS**
- **COMMON FACTORS**
- **COMMON MULTIPLES**
- **RATIONAL NUMBERS**
- **IRRATIONAL NUMBERS**
- **REAL NUMBERS**
- **RECIPROCALS**

NATURAL NUMBERS

- Counting numbers are natural numbers.
- They include all numbers from 1,2,3,4......

WHOLE NUMBERS

- They include all numbers from 0,1,2,3,4......

INTEGERS

- They include all numbers from ....--2,-1,0,1,2,3,4......

PRIME NUMBERS

- They include all numbers greater than 1   and whose only factors are 1 and themselves.
- An entire list has been given below

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

SQUARES

- They include all numbers that can be written as a product of two equal factors of natural numbers.
- Following is the list of square numbers from 1 to 100.

1	4	9	16	25	36	49	64	81	100
121	144	169	196	225	256	289	324	361	400
441	484	529	576	625	676	729	784	841	900
961	1024	1089	1156	1225	1296	1369	1444	1521	1600
1681	1764	1849	1936	2025	2116	2209	2304	2401	2500
2601	2704	2809	2916	3025	3136	3249	3364	3481	3600
3721	3844	3969	4096	4225	4356	4489	4624	4761	4900
5041	5184	5329	5476	5625	5776	5929	6084	6241	6400
6561	6724	6889	7056	7225	7396	7569	7744	7921	8100
8281	8464	8649	8836	9025	9216	9409	9604	9801	10000

CUBE NUMBERS

- They include all numbers that can be written as a product of three equal factors of natural numbers.
- Following is the list of cube numbers from 1 to 10.

1	8	27	64	125	216	343	512	729	1000

COMMON FACTORS

- They include all numbers that can be written as a product of three equal factors of natural numbers.

EXAMPLE:

What are the common factors of 20 and 25?

The factors of 20 : **1, 2, 4, 5, and 20.**

The factors of 25 : **1, 5, and 25.**

The common factors of 20 and 25 : **1 and 5**.

COMMON MULTIPLES

- A common multiple is a number that is a multiple that is common to two or more numbers.
  EXAMPLE:
  Multiples of 2 : 2, 4, <u>6</u>, 8, 10, <u>12</u>, 14, 16, <u>18</u>, …
  Multiples of 3 : 3, <u>6</u>, 9, <u>12</u>, 15, <u>18</u>, …
  Common multiples of 2 and 3 are 6, 12, **18**, …

RATIONAL NUMBERS

- They include all numbers that can be written as a fraction by using integers.

- All *decimals* which either terminate or have a repeating pattern after some point are also rational numbers.

- Example of a terminating fraction:
  The number 0.20 is a rational number because it can be re-written as $\frac{1}{5}$.

- Example of a repeating decimal:
  The number 0.33333…0.33333… is a rational number because it can be re-written as $\frac{1}{3}$


IRRATIONAL NUMBERS

- They include all real numbers that cannot be expressed in the form $\frac{a}{b}$, when a and b are <u>integers</u> (b≠0).

- In decimal form, they never terminate (end) or repeat. Meaning, they include all numbers that are non-terminating and non-repeating.

- Following are some of the irrational numbers
  $\pi=3.14159265358979...$

  $\sqrt{2}=1.41421356237309.....$

REAL NUMBERS

- **They include all numbers except irrational numbers.**
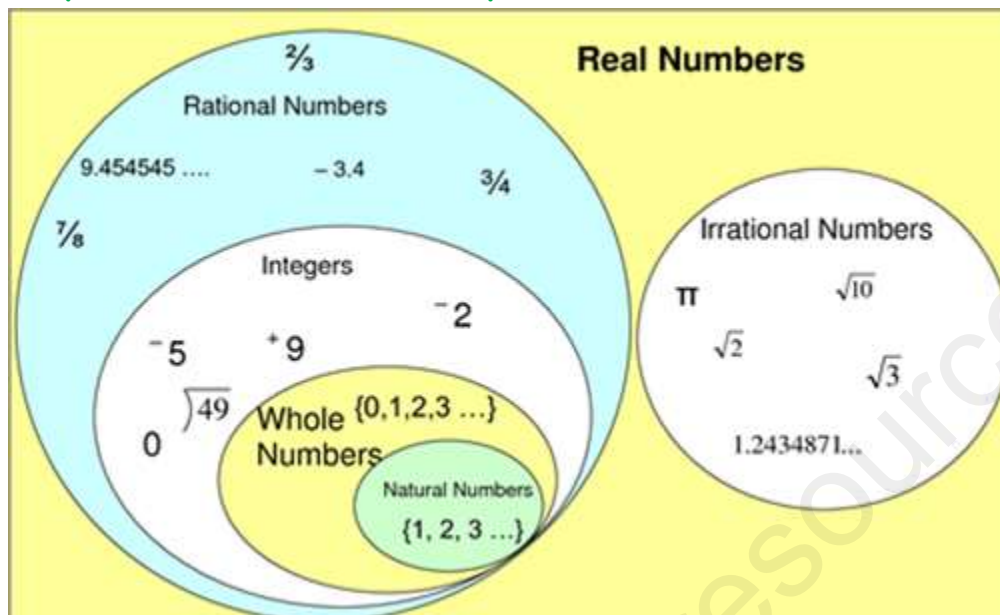
RECIPROCALS

- **Reciprocal number of a given number is the number with its numerator and denominator reversed.**