Worksheet E1.1

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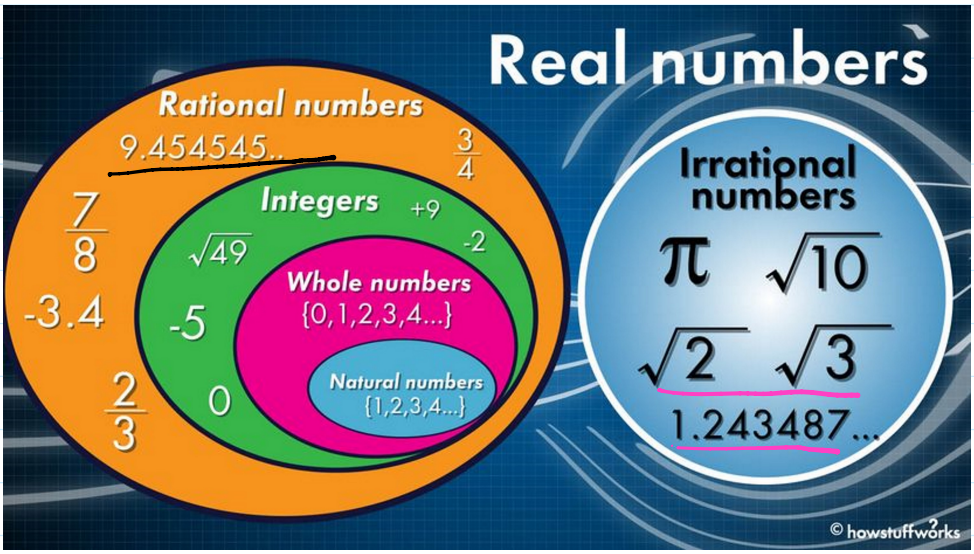


$9.\overline{45}$

An irrational number cannot be expressed in the form of a ratio, such as p/q.

Prime numbers

Those numbers which have only two factors, i.e. 1 and the number itself called prime numbers.

Numbers	Number of prime numbers	List of prime numbers
1 to 100	25 prime numbers	2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
101-200	21 prime numbers	101, 103, 107, 109, 113, 127, 131, 137, 139, 149, 151, 157, 163, 167, 173, 179, 181, 191, 193, 197, 199
201-300	16 prime numbers	211, 223, 227, 229, 233, 239, 241, 251, 257, 263, 269, 271, 277, 281, 283, 293
301-400	16 prime numbers	307, 311, 313, 317, 331, 337, 347, 349, 353, 359, 367, 373, 379, 383, 389, 397
401-500	17 prime numbers	401, 409, 419, 421, 431, 433, 439, 443, 449, 457, 461, 463, 467, 479, 487, 491, 499
501-600	14 prime numbers	503, 509, 521, 523, 541, 547, 557, 563, 569, 571, 577, 587, 593, 599
601-700	16 prime numbers	601, 607, 613, 617, 619, 631, 641, 643, 647, 653, 659, 661, 673, 677, 683, 691
701-800	14 prime numbers	701, 709, 719, 727, 733, 739, 743, 751, 757, 761, 769, 773, 787, 797
801-900	15 prime numbers	809, 811, 821, 823, 827, 829, 839, 853, 857, 859, 863, 877, 881, 883, 887
901-1000	14 prime numbers	907, 911, 919, 929, 937, 941, 947, 953, 967, 971, 977, 983, 991, 997
Total number of prime numbers (1 to 1000) = 168		

Square Number

When a number is multiplied by itself, the resultant is called a 'Square Number'.

Square numbers are always positive. For example, (-4) * (-4) = 16.

Numbers	Squares	Numbers	Squares
1	1	11	121
2	4	12	144
3	9	13	169
4	16	14	196
5	25	15	225
6	36	16	256
7	49	17	289
8	64	18	324
9	81	19	361
10	100	20	400

$\sqrt{16} = 4$

Cube Number

When a number is multiplied by itself 2 times, the resultant is called a 'Cube Number'.

Cube numbers can be positive or negative both.

$1^3 = 1$

$2^3 = 8$

$3^3 = 27$

$4^3 = 64$

$5^3 = 125$

$6^3 = 216$

$7^3 = 343$

$8^3 = 512$

$9^3 = 729$

$10^3 = 1000$

$$\frac{(-3)\times(-3)\times(-3)}{9 \times (-3)}$$

$$-27$$

Common Factors of 12 and 18

All factors of 12 = 1, 2, 3, 4, 6, 12

All factors of 18 = 1, 2, 3, 6, 9, 18

Multiples

The multiples are obtained by multiplying any whole number with the counting numbers. For example, to find the multiples of 6, first we multiply 6 by 1, then 2, then 3, and so on.

Common Multiples

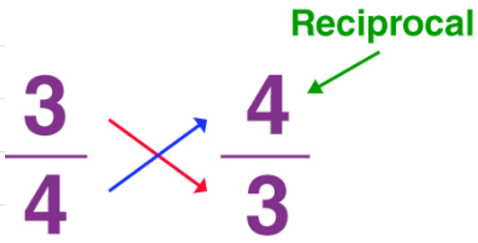
Multiples that are common in any two numbers, are known as common multiples.

30 = 30, 60, 90, 120, 150, 180, 210, 240, 270, 300…..

45 = 45, 90, 135, 190, 225, 270, 315…….

Reciprocal

In reciprocal we flip the number and keep sign as it is.



Convert between numbers and words

000 Billion 000 Million 000 Thousand 000

345 675 546 008

676 897 007

34 456 560

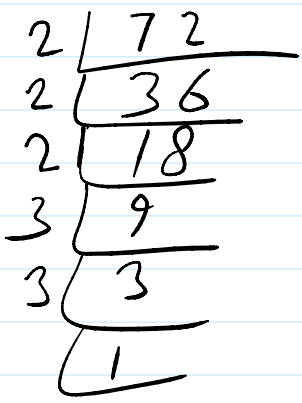
17 090

6 000 000 000

10 007

Prime Factorization

72, 18, 91, 112



$72 = 2 \times 2 \times 2 \times 3 \times 3$

HCF

To get Highest Common Factor, multiply all common prime factors.

Find out HCF of
36, 12, 24, 48
34, 102

$36 = 2 \times 2 \times 3 \times 3$
$12 = 2 \times 2 \times 3$
$24 = 2 \times 2 \times 2 \times 3$
$48 = 2 \times 2 \times 2 \times 2 \times 3$

$2 \times 2 \times 3 = 12$

LCM (lowest common multiple)

Find out LCM of
5, 20
6,18,48

$LCM = 2 \times 2 \times 2 \times 2 \times 3 \times 3$

$= 144$