# MIND MAP

# CH – 1

# REAL NUMBERS

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### THEOREMS

Let p be a prime number, If p divides $a^2$ then p divides a also

Let x be a rational number whose decimal expansion terminates then x can be expressed in form of p/q such that p and q are co-primes then the prime factorization of q is of the form $2^m 5^n$

Let x = p/q be a rational number such that the prime factorization of q is of the form $2^m 5^n$, where n, m are non negative integers then x has decimal expansion which terminates

and

if not in form of $2^m 5^n$, then the decimal expansion will be non terminating repeating

### FACTORISATION METHOD

It is to find HCF and LCM,and hence satisfies the condition

HCF(a,b) x LCM(a,b) =

a x b

### THE FUNDAMENTAL THEOREM OF ARITHMETIC

Every composite number can be expressed as the product of primes and this representation is unique, irrespective of the order of factors in which they occur

### EUCLID'S DIVISION LEMMA

If a and b are two positive integers then there exists unique integers q and r such that a = bq+ r

### EUCLID'S DIVISION ALGORITHM

*It is basically to find HCF by the following steps*

*Step 1 : Apply Euclid's division lemma, to c and d. So, we find whole numbers, q and r such that $c = dq + r$, $0 \le r < d$.*

*Step 2 : If $r = 0$, d is the HCF of c and d. If $r \neq 0$, apply the division lemma to d and r.*

*Step 3 : Continue the process till the remainder is zero. The divisor at this stage will be the required HCF.*