REAL NUMBERS

S.no	Type of Numbers	Description
1	Natural Numbers	N = {1,2,3,4,5……….} It is the counting numbers
2	Whole number	W= {0,1,2,3,4,5……..} It is the counting numbers + zero
3	Integers	Z={…-7,-6,-5,-4,-3,-2,-1,0,1,2,3,4,5,6…}
4	Positive integers	Z_+= {1,2,3,4,5……..}
5	Negative integers	Z_-={…-7,-6,-5,-4,-3,-2,-1}
6	Rational Number	A number is called rational if it can be expressed in the form p/q where p and q are integers (q> 0). Example : ½ , 4/3 ,5/7 ,1 etc.
7	Irrational Number	A number is called rational if it cannot be expressed in the form p/q where p and q are integers (q> 0). Example : $\sqrt{3}, \sqrt{2}, \sqrt{5}, \pi$ etc
8.	Real Numbers:	All rational and all irrational number makes the collection of real number. It is denoted by the letter R

S.no	Terms	Descriptions
1	Euclid's Division Lemma	For a and b any two positive integer, we can always find unique integer q and r such that
		$a=bq + r \quad , \quad 0 \leq r \leq b$ If r =0, then b is divisor of a.

2	HCF (Highest common factor)	HCF of two positive integers can be find using the Euclid's Division Lemma algorithm We know that for any two integers a, b. we can write following expression $a=bq + r \quad , \quad 0 \le r \le b$ If r=0 ,then HCF(a, b) =b If $r \neq 0$, then HCF (a, b) = HCF (b,r) Again expressing the integer b,r in Euclid's Division Lemma, we get $b=pr + r_1$ HCF (b,r)=HCF (r,r_1) Similarly successive Euclid 's division can be written until we get the remainder zero, the divisor at that point is called the HCF of the a and b
3	HCF (a,b) =1	Then a and b are co primes.
4	Fundamental Theorem of Arithmetic	Composite number = Product of primes
5	HCF and LCM by prime factorization method	HCF = Product of the smallest power of each common factor in the numbers LCM = Product of the greatest power of each prime factor involved in the number
6	Important Formula	HCF (a,b) X LCM (a,b) =a X b
7	Important concept for rational Number	Terminating decimal expression can be written in the form $p/2^n5^m$