HCF (Highest Common Factor) & LCM (Least Common Multiple)

HCF / GCD / GCM : HCF of two or more numbers is the greatest number that divides each of them exactly.

(a) Factorization Method (Method of Prime Factors) : Express each number as product of Prime factors. The product of prime factors common to both numbers is the HCF

(b) Division Method: Divide the greater number by smaller. Then divide the divisor by the remainder. Then divide the remainder by the next remainder......continue till remainder becomes 0. The last divisor is required HCF

LCM : The smallest number which is exactly divisible by the given numbers is called the LCM

(a) Method of Prime Factors : Express each number as a product of prime factors. LCM will be the product of the highest powers of all the factors.

(b) Common Division Method

Note :

1. Product of two numbers = Product of their LCM & HCF
2. Two numbers are said to be co – primes if their HCF is 1.
3. FRACTIONS :

HCF = (HCF of Numerators) / (LCM of Denominators)

LCM = (LCM of Numerators) / (HCF of Denominators)

4. DECIMALS : Convert the given numbers to numbers with the same decimal places. Then find their LCM or HCF considering them as integers and mark the decimal at the place similar to the numbers
5. If two numbers are divisible by a certain number then their sum is also divisible by that number.

PERCENTAGE

FACTS TO REMEMBER: PERCENTAGE

1. A fraction whose denominator is 100 is called a Percentage & the numerator of the fraction is called the RATE PER CENT
2. 5% = 1/20   10% = 1/10   20 % = 1/5   25 % = 1/4   75 % = 3/4
   33.33 % = 1/3   66.66 % =2/3
3. x as a percentage of y is $\frac{x}{y} \times 100$ %
4. If two values are respectively x% and y% more than a third value , then the first is $\frac{(100+x)}{(100+y)} \times 100$ % of the second
5. If A is x% of C and B is y% of C , then A is $\frac{x}{y} \times 100$ % of B
6. x% of a quantity is added, again y% of the increased quantity is added, again z% of the increased quantity is added, and it becomes A, then the initial amount is given by $\frac{(A \times 100 \times 100 \times 100)}{[(100+x)(100+y)(100+z)]}$
7. If the original population of a town is P and the annual increase is r%, the population in 'n' years will be $P(1+\frac{r}{100})^n$
8. If the original population of a town is P and the annual decrease is r%, the population in 'n' years will be $P(1-\frac{r}{100})^n$
9. If the value of a number is

(a) first increased by x% and then increased by y% then there is $(x+y+\frac{xy}{100})$ % increase

(b) first increased by x% and then decreased by y% then there is $(x-y-\frac{xy}{100})$ % increase or decrease , according to +ve or – ve sign , respectively

(c) first decreased by x% and then increased by y% then there is $(-x+y-\frac{xy}{100})$ % increase or decrease , according to +ve or – ve sign , respectively

(d) first decreased by x% and then decreased by y% then there is $(-x-y-\frac{xy}{100})$ % decrease