Lowest Common Multiple (LCM)

The LCM, or Least Common Multiple, is the smallest positive integer that is divisible by two or more numbers without leaving a remainder. It is the "smallest common denominator" that can be used by fractions for addition and subtraction.

Here's a quick example:

The LCM of 4 and 5 is 20, because 20 is the smallest number that can be divided by both 4 and 5 without leaving a remainder.

We can find the lowest common multiple by the following methods

- Prime factorisation Method
- Listing Multiples

Let's understand both methods one by one with examples

Prime Factorisation Method

To get LCM we multiply all prime numbers with their highest power. **Example:** What is the LCM of 14 and 18?

Solution: By prime factorisation, we can write,

14 = 2 x 7

 $18 = 2 \times 3 \times 3$

The prime factors 2, 3, 3 and 7 are the maximum number of times they occurred in the numbers. So, product of these prime factors will result in required LCM. Therefore,

LCM of 14 and 18 = 2 x 3 x 3 x 7 = 126

LCM (14, 18) = 126

Listing Multiples

Example: Find the LCM of 10, 12, 15 using listing methods.

Solution: First listing all the multiples, we get; Multiples of 10 = 10, 20, 30, 40, 50, 60, 70, 80 Multiples of 12 = 12, 24, 36, 48, 60, 72, 84 Multiples of 15 = 15, 30, 45, 60, 75, 90 Therefore, LCM of (10, 12, 15) = 60