



Basic Concepts of HCF & LCM

For Class 7 & 9

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HCF and LCM Definition

We know that the factors of a number are exact divisors of that particular number. Let's proceed to the highest common factor (H.C.F.) and the least common multiple (L.C.M.).



H.C.F

- As the rules of mathematics dictate, the greatest common divisor or the gcd of two or more positive integers happens to be the largest positive integer that divides the numbers without leaving a remainder. For example, take 8 and 12. The H.C.F. of 8 and 12 will be 4 because the highest number that can divide both 8 and 12 is 4.

L.C.M

- In arithmetic, the least common multiple or LCM of two numbers say a and b, is denoted as LCM (a,b). And the LCM is the smallest or least positive integer that is divisible by both a and b. For example, let us take two positive integers 4 and 6.
- Multiples of 4 are: 4,8,12,16,20,24...
- Multiples of 6 are: 6,12,18,24....
- The common multiples for 4 and 6 are 12,24,36,48...and so on. The least common multiple in that lot would be 12. Let us now try to find out the LCM of 24 and 15.

2	24, 15
2	12, 15
2	6, 15
3	3, 15
5	1, 5
	1, 1

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➤ LCM of 24 and 15 = $2 \times 2 \times 2 \times 3 \times 5 = 120$



LCM of Two Numbers

- Suppose there are two numbers, 8 and 12, whose LCM we need to find. Let us write the multiples of these two numbers.
- $8 = 16, 24, 32, 40, 48, 56, \dots$
- $12 = 24, 36, 48, 60, 72, 84, \dots$
- You can see, the least common multiple or the smallest common multiple of two numbers, 8 and 12 is 24.

HCF and LCM Formula

- The formula which involves both HCF and LCM is:

Product of Two numbers = (HCF of the two numbers) x (LCM of the two numbers)

- Say, A and B are the two numbers, then as per the formula;
 $A \times B = \text{H.C.F.}(A, B) \times \text{L.C.M.}(A, B)$
We can also write the above formula in terms of HCF and LCM, such as:
- **H.C.F. of Two numbers = Product of Two numbers/L.C.M of two numbers**
& L.C.M of two numbers = Product of Two numbers/H.C.F. of Two numbers
- NOTE- The above relation between H.C.F and L.C.M is not valid for the product of numbers greater than 2. It is only valid for the product of two numbers.



Thanks For Having Patience

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