Highest Common Factor

The highest common factor is also known as the greatest common factor (GCF) or the greatest common divisor (GCD).

We have different methods to calculate the Highest Common Factor.

(i) HCF by listing factors method(ii) HCF by prime factorization method(iii) HCF by division method

Let's understand all the three methods one by one with examples.

HCF by listing factors method

Example: Highest common factor of 32 and 24
Solution:
Factors of 32 = 1, 2, 4, 8, 16, 32
Factors of 24 = 1, 2, 3, 4, 6, 8, 12, 24
Here, the largest number that is common in the list of factors is 8.
Therefore, HCF (32, 24) = 8.

HCF by prime factorization method

 Example: Highest common factor of 36 and 84.
 Solution: Prime factorization of 36 = 2 × 2 × 3 × 3 = 2² × 3² Prime factorization of 84 = 2 × 2 × 3 × 7 = 2² × 3 × 7 Thus, the highest common factor of 36 and 84 = 2² × 3 = 4 × 3 = 12 HCF (36, 84) = 12

Highest Common Factor

HCF by division method

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 Example: Highest common factor of 18 and 24.
 Solution: 24 > 18 So, dividend = 24 and divisor = 18

Let's perform the division as explained in the above steps.



Therefore, the highest common factor of 18 and 24 is 6.