

Prime factorization

- Prime factorization of a number is a representation of number as a product of primes.

$$24 = 2 * 2 * 2 * 3$$

Handwritten notes on a blackboard illustrating the prime factorization of 24. The notes include a table of divisors, a loop for i from 2 to n , and a while loop for counting the number of times i divides n . The final result is $2^3 * 3^1$.

n	i	cnt
24	2	0
12	2	1
6	2	2
3	2	3
3	3	0
1	3	1

Code snippets shown:

```

for i : [2, n]
    if (i divides n)
        cnt = 0
        while (i divides n)
            n /= i
            cnt++
        print (i, cnt)
    
```

Final result: $2^3 * 3^1$

```

for(auto i=2;i<=int (sqrt(n));i+=2)
{
    count =0;
    while(n%i==0)
    {
        if(i%2==0)
        count++;
        n=n/i;
    }
    Cout<<i<<^<<count<<endl;
}
if(n>1)
    Cout<<n<<"^"<<1<<endl;
    
```