

6279. Distinct Prime Factors of Product of Array

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Given an array of positive integers `nums`, return the number of **distinct prime factors** in the product of the elements of `nums`.

Note that:

- A number greater than 1 is called **prime** if it is divisible by only 1 and itself.
- An integer `val1` is a factor of another integer `val2` if `val2 / val1` is an integer.

Example 1:

Input: `nums = [2,4,3,7,10,6]`

Output: 4

Explanation:

The product of all the elements in `nums` is: $2 * 4 * 3 * 7 * 10 * 6 = 10080 = 2^5 * 3^2 * 5 * 7$.

There are 4 distinct prime factors so we return 4.

Example 2:

Input: `nums = [2,4,8,16]`

Output: 1

Explanation:

The product of all the elements in `nums` is: $2 * 4 * 8 * 16 = 1024 = 2^{10}$.

There is 1 distinct prime factor so we return 1.

Constraints:

- $1 \leq \text{nums.length} \leq 10^4$
- $2 \leq \text{nums}[i] \leq 1000$

JavaScript




```
1 const addOneOrManyMap = (m, x, cnt = 1) => m.set(x, m.get(x) + cnt || cnt);
2
3 const distinctPrimeFactors = (a) => {
4   let m = new Map();
5   for (const x of a) {
6     let factors = prime_factorization(x);
7     for (const f of factors) addOneOrManyMap(m, f);
8   }
9   return m.size;
10 };
11
12 const prime_factorization = (n) => {
13   let res = [];
14   while (n % 2 === 0) {
15     res.push(2);
16     n /= 2;
17   }
18   for (let i = 3; i * i <= n; i += 2) {
19     while (n % i === 0) {
20       res.push(i);
21       n /= i;
22     }
23   }
24   if (n > 2) res.push(n);
25   return res;
26 };
```

☐ Custom Testcase

Use Example Testcases

 Run

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