Problem 2521: Distinct Prime Factors of Product of Array

Problem Information

Difficulty: Medium
Acceptance Rate: 53.76%
Paid Only: No
Tags: Array, Hash Table, Math, Number Theory

Problem Description

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 = 25 * 32 * 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 = 210. There is 1 distinct prime factor so we return 1.

Constraints:

* `1 <= nums.length <= 104` * `2 <= nums[i] <= 1000`

Code Snippets

C++:

```
class Solution {
public:
int distinctPrimeFactors(vector<int>& nums) {

}
};
```

Java:

```
class Solution {
public int distinctPrimeFactors(int[] nums) {

}
}
```

Python3:

```
class Solution:
def distinctPrimeFactors(self, nums: List[int]) -> int:
```