E. Divisor Tree

time limit per test: 0.5 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

A *divisor tree* is a rooted tree that meets the following conditions:

- Each vertex of the tree contains a positive integer number.
- The numbers written in the leaves of the tree are prime numbers.
- For any inner vertex, the number within it is equal to the product of the numbers written in its children.

Manao has n distinct integers $a_1, a_2, ..., a_n$. He tries to build a divisor tree which contains each of these numbers. That is, for each a_i, there should be at least one vertex in the tree which contains a_i. Manao loves compact style, but his trees are too large. Help Manao determine the minimum possible number of vertices in the divisor tree sought.

Input

The first line contains a single integer n ($1 \le n \le 8$). The second line contains n distinct space-separated integers a_i ($2 \le a_i \le 10^{12}$).

Output

Print a single integer — the minimum number of vertices in the divisor tree that contains each of the numbers a_i.

Examples

input
2 6 10

output
7

input
4 6 72 8 4

output
12

input
1 7

output
1

Note

Sample 1. The smallest divisor tree looks this way:

Sample 2. In this case you can build the following divisor tree:

Sample 3. Note that the tree can consist of a single vertex.