F. SUM and REPLACE

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Let $D(x)$ be the number of positive divisors of a positive integer x. For example, $D(2) = 2$ (2 is divisible by 1 and 2), $D(6) = 4$ (6 is divisible by 1, 2, 3 and 6).

You are given an array a of n integers. You have to process two types of queries:

1. `REPLACE` l r — for every replace a_i with $D(a_i)$;
2. `SUM` l r — calculate .

Print the answer for each `SUM` query.

Input

The first line contains two integers n and m ($1 \le n, m \le 3 \cdot 10^5$) — the number of elements in the array and the number of queries to process, respectively.

The second line contains n integers a_1, a_2, ..., a_n ($1 \le a_i \le 10^6$) — the elements of the array.

Then m lines follow, each containing 3 integers t_i, l_i, r_i denoting i-th query. If $t_i = 1$, then i-th query is `REPLACE` l_i r_i, otherwise it's `SUM` l_i r_i ($1 \le t_i \le 2$, $1 \le l_i \le r_i \le n$).

There is at least one `SUM` query.

Output

For each `SUM` query print the answer to it.

Example

input
7 6 6 4 1 10 3 2 4 2 1 7 2 4 5 1 3 5 2 4 4 1 5 7 2 1 7
output
30 13 4 22