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F. SUM and REPLACE

time limit per test: 2 seconds

memory limit per test: 256 megabytes

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 $i \in [l, r]$ replace a_i with $D(a_i)$;
2. SUM $l\ r$ — calculate $\sum_{i=l}^{r} a_i$.

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	Copy
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	Copy
30	
13	
4	
22	