

Problem K. Möbius

Input file: *standard input*
Output file: *standard output*
Time limit: 2 seconds
Memory limit: 256 mebibytes

For any positive integer n , let's define Möbius function $\mu(n)$. It has values in $\{-1, 0, 1\}$ depending on the factorization of n into prime factors:

- $\mu(x) = 1$ if x is a square-free positive integer with an even number of prime factors.
- $\mu(x) = -1$ if x is a square-free positive integer with an odd number of prime factors.
- $\mu(x) = 0$ if x has is divisible by some squared prime factor.

For example, $\mu(1) = 1, \mu(2) = -1, \mu(6) = 1, \mu(12) = 0$.

You are given two arrays a and b , consisting of positive integers.

Let k_y be the number of pairs $(i, j), 1 \leq i \leq n, 1 \leq j \leq m$ such that $\mu(a_i \cdot b_j)$ is equal to y .

Your task is to calculate k_{-1}, k_0 and k_1 .

Input

The first line of input contains two integers n, m ($1 \leq n, m \leq 2 \cdot 10^5$) — the sizes of arrays a and b .

The second line contains n integers a_i ($1 \leq a_i \leq 10^6$) separated by spaces.

The third line contains m integers b_i ($1 \leq b_i \leq 10^6$) separated by spaces.

Output

Output three integers k_{-1}, k_0, k_1 separated by spaces in a single line, where $k_y = |\{(i, j) : \mu(a_i \cdot b_j) = y\}|$.

Example

standard input	standard output
6 4 1 2 3 4 5 6 2 3 5 7	6 9 9