Game With Numbers

Two players are playing a game. They are given an array $a_1, a_2, \ldots, a_n$ as well as an array $b_1, b_2, \ldots, b_m$.

The game consists of m rounds. Players are participating in rounds alternatively. During the i-th round (for i from 1 to m) the corresponding player (first player, if i is odd, and second if i is even) has to do exactly one of the following:

- remove all elements from the array a that **are divisible** by b_i,
- remove all elements from the array a that **are not divisible** by b_i.

The first player wants to minimize the sum of the remaining elements in the array a after all m rounds, and the second wants to maximize it. Find the sum of the remaining elements in the array a after all m rounds if both players are playing optimally.

Input

The first line contains two integers n, m ($1 \le n \le 2 \cdot 10^4$, $1 \le m \le 2 \cdot 10^5$) - the length of the array a and the number of rounds in the game.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($-4 \cdot 10^{14} \le a_i \le 4 \cdot 10^{14}$) - the elements of the array a.

The third line contains m integers $b_1, b_2, \ldots, b_m$ ($1 \le b_i \le 4 \cdot 10^{14}$) - the elements of the array b.

Output

Output a single integer - the sum of the remaining elements of the array a after all m rounds if both players are playing optimally.

Examples

Input 1:

```
6 2
2 2 5 2 2 7
2 5
```

Output 1:

```
7
```

Input 2:

```
5 1
-5000111000 -5000222000 -15 5 2
5
```

Output 2:

```
-10000333010
```

Note

In the first sample, one possible flow of the game is the following:

- Round 1: first player removes from a all elements divisible by 2. a becomes $(5, 7)$.
- Round 2: second player removes from a all elements divisible by 5. a becomes (7). If he had removed from a all elements not divisible by 5, a would become (5), which has a smaller sum of elements and therefore is not desirable for the second player.

Scoring

1. (3 points): $m = 1$
2. (6 points): $b_{i+1} = b_i$ ($1 \le i < m$), i.e. all elements of the array b are the same
3. (15 points): $b_{i+1} \bmod b_i = 0$ ($1 \le i < m$)
4. (9 points): $1 \le m \le 7$
5. (11 points): $1 \le m \le 20$
6. (15 points): $1 \le m \le 100$
7. (18 points): $1 \le a_i, b_i \le 10^9$
8. (11 points): $m \bmod 2 = 0$, $b_{2i-1} = b_{2i}$ ($1 \le i \le \frac{m}{2}$)
9. (12 points): No additional constraints