Day 10: Fora and Laura

locked

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Fora gives Laura an array x of length a and asks her to process m queries of the following format: given integers y and z, multiply x_{y} by z.

After processing each query Laura needs to output the greatest common divisor (GCD) of all elements of the array x.

Since the answer can be too large, she is asked to output it modulo 10**9+7.

Input Format

The first line contains two integers — a and m (1 ≤ a , m ≤ 2*100000).

The second line contains a integers x_1, x_2,... , x_a (1 ≤ x_i ≤ 2*100000) — the elements of the array x before the changes.

The next m lines contain queries in the following format: each line contains two integers y and z (1 ≤ y ≤ a, 1 ≤ z ≤ 2*100000).

Constraints

- (1 ≤ a , m ≤ 2*100000)
- (1 ≤ x_i ≤ 2*100000)
- (1 ≤ y ≤ a, 1 ≤ z ≤ 2*100000)

Output Format

Print m lines: after processing each query output the GCD of all elements modulo 10**9+7 on a separate line.

Sample Input 0

```
4 3
1 6 8 12
1 12
2 3
3 3
```

Sample Output 0

```
2
2
6
```

Explanation 0

After the first query the array is [12,6,8,12], gcd(12,6,8,12)=2.

After the second query — [12,18,8,12], gcd(12,18,8,12)=2.

After the third query — [12,18,24,12], gcd(12,18,24,12)=6.

Here the gcd function denotes the greatest common divisor.

Submissions: 14
Max Score: 80
Difficulty: Medium