NOI '22 Multi-Provincial Team Selection P4 - Card

Time limit: 1.0s **Memory limit:** 512M

Tommy has a **multiset** of n positive integers $S = \{s_1, s_2, \ldots, s_n\}$ and m queries. In query i, he has c_i **prime** numbers $p_1, p_2, \ldots, p_{c_i}$ and asks: how many multisets $S' \subseteq S$ satisfy that all given primes p divide the product of all elements of S'? Output the answer modulo $998\,244\,353$.

Constraints

$n \leq 10^6$

$s_i, p_i \leq 2\,000$

$m \leq 1\,500$

$\sum c_i \leq 18\,000$

Test	$n \leq$	$m \leq$	$\sum c_i \leq$	Other restrictions
1, 2	10	10	20	$s_i \leq 30$
3, 4, 5	10	20	50	None
6, 7, 8	10^6	$1\,500$	10^4	$s_i \leq 30$
9, 10, 11	10^4	$1\,000$	$5\,000$	$s_i \leq 500$
12, 13	$1\,000$	100	$1\,000$	None
14, 15, 16, 17	$5\,000$	600	$7\,000$	None
18, 19, 20	10^6	$1\,500$	$18\,000$	None

Input Specification

The first line contains a positive integer n.

The second line contains n positive integers $s_1, s_2, \ldots, s_n$.

The third line contains a positive integer m.

The next m lines begin with a positive integer c_i. c_i primes follow, describing a query.

Output Specification

Output m lines, corresponding to the answer for the corresponding query.

Sample Input 1

```
5
10 2 10 5 46
4
2 2 5
2 2 23
1 3
1 23
```

Sample Output 1

```
27
16
0
16
```

Attachments

Attachments can be found here.