Emma and sum of products

Emma is really fond of integers and loves playing with them. Her friends were jealous, and to test her, one of them gave her a problem.
Emma is given a list A of N integers and is asked a set of Q queries. Each query is denoted by an integer K, for which you have to return the sum of product of all possible sublists having exactly K elements.
Emma has got stuck in this problem and you being her best friend have decided to help her write a code to solve it. Since the answers can be very large, print the answers modulo 100003.

Input Format
First line has an integer N, denoting the number of integers in list A. Next line contains N space separated integers. The third line contains integer Q, and next Q lines have a single integer K.

Output Format
For each of the queries, print the corresponding answer in a new line.

NOTE Sublist here refers to selecting K elements from a list of N elements. There will be $\binom{N}{K}$ ways to do that, it doesn't matter if two elements are same.

Constraints
$1 \leq N \leq 3 \times 10^4$
$1 \leq A_i \leq 10^5$
$1 \leq Q \leq N$
$1 \leq K \leq N$

Sample Input #00

```
3
1 2 3
2
1
2
```

Sample Output #00

```
6
11
```

Sample Input #01

```
3
1 2 2
1
2
```

Sample Output #01

```
8
```

Explanation

Sample #00:
For $K = 1$ possible sublists are $\{1\}, \{2\}, \{3\}$ so answer is $1 + 2 + 3 = 6$.
For $K = 2$ possible sublists are $\{1, 2\}, \{2, 3\}, \{3, 1\}$ so answer is $(1 \times 2) + (2 \times 3) + (3 \times 1) = 2 + 6 + 3 = 11$.

Sample #01:
For $K = 2$ possible sublists are $\{1, 2\}, \{2, 2\}, \{2, 1\}$ so answer is $(1 \times 2) + (2 \times 2) + (2 \times 1) = 2 + 4 + 2 = 8$.