Value of all Permutations

HackerRank

You are given an array A of size N. You are asked to answer Q queries.

Each query contains a number M.

For each *distinct* permutation of the array A, you need to print the sum of the values returned by the `find` function.

As the sum can be too large, output it modulo P, which is a prime and given in input.

```
find(int permutation_A[], int M)
{
    x = Length(permutation_A)
    sum = 0
    for(i = 0; i < x; i++) {
        if (permutation_A[i] <= M)
            sum = sum + permutation_A[i]
        else
            break
    }
    return sum
}
```

Input Format
The first line of input contains P.
The second line of input contains N. The next line contains N numbers $A[0] \dots A[N-1]$ separated by single spaces.
The next line contains Q, the number of queries to follow. Each subsequent line contains one positive integer M.

Output Format
For each query, output as asked above.

Constraints
$1000000 \le P \le 2000003$
$1 \le N \le 10^5$
$1 \le Q \le 10^5$
$1 \le A[i], M \le 10^9$

Sample Input

```
2000003
5
4 2 3 1 4
2
1
2
```

Sample Output

```
12
45
```

Explanation

Query 1:
Consider all permutations. if the first number is greater than 1, then the loop will break in the beginning

itself. There are a total of 60 distinct permutations out of which 48 will give 0. The remaining 12 will fetch 1 each from the function. Thus the answer is 12.