6373 Substrings

XXX has an array of length n. XXX wants to know that, for a given w, what is the sum of the distinct elements' number in all substrings of length w. For example, the array is $\{1\ 1\ 2\ 3\ 4\ 4\ 5\}$. When $w = 3$, there are five substrings of length 3. They are $(1, 1, 2), (1, 2, 3), (2, 3, 4), (3, 4, 4), (4, 4, 5)$.

The distinct elements' number of those five substrings are 2,3,3,2,2.

So the sum of the distinct elements' number should be 2+3+3+2+2 = 12

Input

There are several test cases.

Each test case starts with a positive integer n, the array length. The next line consists of n integers $a_1, a_2 \ldots a_n$, representing the elements of the array.

Then there is a line with an integer Q, the number of queries. At last Q lines follow, each contains one integer w, the substring length of query. The input data ends with $n = 0$. For all cases, $0 < w \leq n \leq 10^6$, $0 \leq Q \leq 10^4$, $0 \leq a_1, a_2 \ldots a_n \leq 10^6$.

Output

For each test case, your program should output exactly Q lines, the sum of the distinct number in all substrings of length w for each query.

Sample Input

```
7
1 1 2 3 4 4 5
3
1
2
3
0
```

Sample Output

```
7
10
12
```