One of the first formulas we were taught in high school mathematics is $(a+b)^2 = a^2 + 2ab + b^2$.

Later on, we learned that this is a special case of the expansion $(a+b)^n$, in which the coefficient of $a^k b^{n-k}$ is the number of combinations of n things taken k at a time. We never learned (at least I never did ...) what happens if instead of a binomial $a+b$ we have a multinomial $a+b+c+\ldots+x$.

Your task is to write a program that, given a multinomial $m = a_1 + a_2 + \ldots + a_k$, $k \geq 1$, computes the coefficient of a given term in the expansion of m^n, $n \geq 1$. The given term is specified by a sequence of k integer numbers $z_1, z_2, \ldots, z_k$, representing the powers of $a_1, a_2, \ldots, a_k$ in the expansion. Note that $z_1 + z_2 + \ldots + z_k = n$. For example, the coefficient of ab^2c in $(a+b+c)^4$ is 12.

Input

The input file contains several test cases, each of them with three lines.

The first line contains a number representing the value of n. The second line contains a number representing the value of k. The third line contains k numbers, representing the values of $z_1, z_2, \ldots, z_k$.

All test cases are such that $k \leq 100$ and the computed coefficient is less than 2^{31}.

Output

For each test case, write to the output one line.

This line contains one integer number representing the value of the coefficient of the term $a_1^{z_1} \cdot a_2^{z_2} \cdot \ldots \cdot a_k^{z_k}$ in the expansion of $(a_1 + a_2 + \ldots + a_k)^n$.

Sample Input

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

Sample Output

```
12
210
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