Not Another Eulerian Number Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

For a positive integer α, consider the following sequence $a_1, a_2, \cdots, a_{\alpha n}$ of length αn which satisfies:

- For each $1 \le k \le n$, the sequence contains exactly α occurrences of k.
- If there exists two integers $i < j$ such that $a_i = a_j$, then for any $i < k < j$, it holds that $a_k \ge a_i$.

We call a sequence that satisfies the above requirements an (n, α)-order permutation.

Now, given an (n_0, α)-order permutation $P = p_1, p_2, \cdots p_{\alpha n_0}$, also given two integers n and m, please calculate the number of (n, α)-order permutations $B = b_1, b_2, \cdots b_{\alpha n}$ which satisfies:

- P is a subsequence of B.
- There are exactly m indices i such that $1 \le i < \alpha n$ and $b_i > b_{i+1}$.

We say P is a subsequence of B, if and only if we can obtain P by removing some elements (possibly none or all) from B.

Input

There is only one test case in each test file.

The first line contains four integers α, n, m, n_0 ($1 \le n \le 10$, $0 \le m < n$, $1 \le n_0 \le n$, $1 \le \alpha n \le 10$).

The second line contains αn_0 positive integers $p_1, p_2, \cdots, p_{\alpha n_0}$ ($1 \le p_i \le n_0$) indicating the given sequence P. It is guaranteed that P forms an (n_0, α)-order permutation.

Output

Output one line containing one integer, indicating the number of sequence B that meets the requirements.

Examples

standard input	standard output
`1 4 2 2` `2 1`	`7`
`2 4 2 2` `1 2 2 1`	`19`