

Difficulties

time limit per test: 1 second (3 seconds for Python)
memory limit per test: 500 megabytes
input: standard input
output: standard output
points: 100 · problem code: difficulties

You are lining up n problems for a contest. Each problem has one of k difficulty labels. There are a_i problems with label i , and $a_1 + a_2 + \dots + a_k = n$.

Problems with the same label are indistinguishable. Problems with different labels are distinct. Count the number of distinct ordered problemsets (sequences of length n). Since the answer can be large, output it modulo $10^9 + 7$.

Input

The first line contains two integers n and k .

The second line contains k integers $a_1, a_2, \dots, a_k$.

It is guaranteed that $a_1 + a_2 + \dots + a_k = n$.

Output

Print one integer: the number of distinct ordered problemsets, modulo $10^9 + 7$.

Constraints

- $1 \leq k \leq n \leq 10^6$
- $0 \leq a_i \leq n$
- $a_1 + a_2 + \dots + a_k = n$

Example 1

Input

```
3 2
2 1
```

Output

```
3
```

Explanation

Write A for label 1 and B for label 2. The distinct sequences are AAB , ABA , and BAA .

Example 2

Input

```
4 4
1 1 1 1
```

Output

```
24
```

Explanation

Every problem has a distinct label, so every permutation of the 4 problems is distinct: $4! = 24$.

Example 3

Input

```
6 3
3 2 1
```

Output

```
60
```

Explanation

If the labels were all distinct there would be $6!$ sequences. The three copies of the first label are indistinguishable, as are the two copies of the second, so divide by $\frac{6!}{3! 2! 1!} = 60$.