

# Steps

2022/2023 SEASON – SIXTH ROUND



Like any student in the "low land" Danny likes to drink (soft drinks). After another party (where he drank only soft drinks), unfortunately for him, it is time to go back to his dormitory, which is located  $n$  meters away. Since he already had a lot of fun and documented it in front of his friends with photographic materials, he wants to take steps directly to his dorm with lengths in meters only among his favorite  $k$  numbers  $x_1, x_2, \dots, x_k$ . Find in how many ways he can end up exactly in his dormitory.

Formally, we want to find the number of distinct sequences  $R = \{s_1, s_2, \dots, s_{|R|}\}$ , for which  $\sum_{j=1}^{|R|} s_j = n$  and  $s_j \in \{x_1, x_2, \dots, x_k\}$  for each  $1 \leq j \leq |R|$

## Input

The first line of the file **steps.in** contains the numbers  $n$  and  $k$  and the second line contains  $k$  numbers -  $x_1, x_2, \dots, x_k$ .

## Output

Print the answer in the file **steps.out**. Two ways are considered different if their corresponding sequences are different. Since the value can get very large, print the answer modulo  $10^9 + 9$ .

## Constraints

$$1 \leq k \leq n \leq 10^4$$

$$1 \leq x_1 < x_2 < \dots < x_k \leq n$$

**Time limit: 0.6 sec.**

**Memory limit: 256 MB.**

## Sample test

Input (steps.in)	Output (steps.out)
13 3	5
1 11 13	