

TLE '15 P5 - Prefix Sum Array

Fax McClad, Croneria's most courageous bounty hunter, often has weird dreams in his sleep. Sometimes, he dreams about his past experiences, and at other times, **he has nightmares about problem statements that have no relation to the actual problem.**

One night, Fax had a very, very bizarre dream about **d**:

d received an array of length N ($1 \leq N \leq 2\,000$) with elements numbered from $1 \dots N$, and he performed the sum operation on it.

The sum operation takes in an array A and returns an array B . Array B has these two important properties:

1. Array A and array B are equal in length.
2. For all elements $B[k]$, the element satisfies $B[k] = A[1] + A[2] + \dots + A[k]$

Unimpressed with the result, **d** fed the result back in to the sum operation repeatedly, performing the operation M ($2 \leq M \leq 10^9$) times in total. At this point, **d**

Suddenly, Fax wakes up! Disturbed by the abstract dream, he asks you to help solve the problem so he can focus on his bounty hunting.

Constraints

Subtask 1 [20%]

Tasks satisfy the constraint $N \times M \leq 10^6$.

Subtask 2 [60%]

Tasks satisfy the constraint $N \leq 100$.

Subtask 3 [20%]

No additional constraints.

Input Specification

The first line will contain N , the number of elements in the array.

The next line will contain the elements $A[1], A[2], \dots, A[N]$, ($0 \leq A[i] \leq 10^9 + 6$), each separated by a space.

The final line of input will contain M , the number of times the sum operation is performed.

Output Specification

The array after performing M sum operations on the given array.

Each element should be outputted mod $10^9 + 7$ and elements should be separated by a single space.

Sample Input

```
5
4 2 8 1 1
2
```

Sample Output

```
4 10 24 39 55
```

Explanation for Sample Output

After one sum operation, the array is changed to:

```
4 6 14 15 16
```

After the second sum operation, the array is changed to:

```
4 10 24 39 55
```