C. Partial Sums

You've got an array a, consisting of n integers. The array elements are indexed from 1 to n. Let's determine a two step operation like that:

1. First we build by the array a an array s of partial sums, consisting of n elements. Element number i ($1 \le i \le n$) of array s equals . The operation $x \bmod y$ means that we take the remainder of the division of number x by number y.
2. Then we write the contents of the array s to the array a. Element number i ($1 \le i \le n$) of the array s becomes the i-th element of the array a ($a_i = s_i$).

You task is to find array a after exactly k described operations are applied.

Input

The first line contains two space-separated integers n and k ($1 \le n \le 2000$, $0 \le k \le 10^9$). The next line contains n space-separated integers $a_1, a_2, ..., a_n$ — elements of the array a ($0 \le a_i \le 10^9$).

Output

Print n integers — elements of the array a after the operations are applied to it. Print the elements in the order of increasing of their indexes in the array a. Separate the printed numbers by spaces.

Examples

input

```
3 1
1 2 3
```

output

```
1 3 6
```

input

```
5 0
3 14 15 92 6
```

output

```
3 14 15 92 6
```