Pondo Matrices

time limit per test: 5 seconds
memory limit per test: 976.6 megabytes
input: standard input
output: standard output

points: 100 · problem code: pondomatrices · author: jszqlew

Problem Statement

Pondo has a square matrix consisting of only positive integers A of length n and an integer k, he would like to know what A^k is. Since the individual entries of the matrix can get very large, output each of the entries modulo $10^9 + 7$.

Input Format

Your first line will contain two integers n and k, space-separated. Your next n lines will contain n space-separated positive integers each, the ith of which represents the ith row of the matrix.

Output Format

You should output A^k one row per line, space-separated integers for each row and all integers modulo $10^9 + 7$.

Constraints

- $1 \leq n \leq 10$
- $1 \leq A_{ij}, k \leq 10^9$

Sample Cases

Input 1

```
2 10
1 0
0 1
```

Output 1

```
1 0
0 1
```

Explanation 1

The matrix never changes, it is the identity matrix.

Input 2

```
1 10
2
```

Output 2

```
1024
```

Explanation 2

The output should simply be 2^{10}.

Input 3

```
4 1000000000
1 2 3 4
2 3 4 5
4 5 6 7
7 8 9 10
```

Output 3

```
113333985 65337891 17341797 969345710
998061335 882788678 767516021 652243364
767516021 517690238 267864455 18038672
421698050 970042585 518387113 66731641
```

Explanation 3

Remember to modulo!