LIS Counting

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

You are given integers N, M with and a prime modulo P.

Consider all permutations of length $N \cdot M$ such that the length of their longest increasing subsequence equals N and the length of their longest decreasing subsequence equals M.

Define $f(pos, val)$ for each $1 \leq pos, val \leq N \cdot M$ as the number of such permutations in which the pos-th element of the permutation equals to val.

Find $f(pos, val)$ for all $1 \leq pos, val \leq NM$, modulo P.

Input

The only line of input contains three integers N M P ($1 \leq N \cdot M \leq 100$, $10^8 \leq P \leq 10^9$, P is prime).

Output

Print a table of size $NM \times NM$, the val-th value in pos-th line should be equal to $f(pos, val)$ mod P.

Examples

standard input	standard output
3 2 998244353	0 10 10 5 0 0 10 0 0 6 9 0 10 0 0 4 6 5 5 6 4 0 0 10 0 9 6 0 0 10 0 0 5 10 10 0
1 7 100000007	0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0