

Problem I. Salaj

Input file: *standard input*
Output file: *standard output*
Time limit: 3 seconds
Memory limit: 256 mebibytes

Given two integers V and E , we say that an array A of length E is a valid *connectivity history array* (CHA, for short) if there exists a directed graph with V vertices and E edges and a permutation P of length E such that, if we were to start with an empty graph on V vertices and add edges in the order given by permutation P , then it is true for all $1 \leq i \leq E$ that $A[i]$ is the number of strongly connected components in the graph after adding the $P[i]$ -th edge.

For example, for $V = 3$ and $E = 3$:

$A = [3, 3, 3]$ is a valid CHA because there exists the graph $\{(1, 2), (1, 3), (2, 3)\}$. Regardless of the edge order chosen, the graph will always have three strongly connected components.

$A = [3, 3, 1]$ is a valid CHA because there exists the graph $\{(1, 2), (2, 3), (3, 1)\}$. If we add the edges in exactly this order, the graph will have three strongly connected components after the first two edges, and a single strongly connected component after the third edge is added.

$A = [3, 2, 1]$ is not a valid CHA because there does not exist a graph with three edges on three vertices and an order of adding edges such that the number of strongly connected components decreases after each added edge.

Note that the graph is not allowed to contain self-loops or multiple edges (but if the edge (x, y) exists, the edge (y, x) may also exist).

You are given Q queries, each consisting of a pair of integers (V, MAX) . Your task is to count the number of valid CHAs for each pair (V, E) such that $1 \leq E \leq MAX$.

Input

The first line contains a single integer Q , the number of queries ($Q \leq 10$). In the next Q lines, the i -th line describes the i -th query and contains three integers V_i , MAX_i and MOD_i ($1 \leq V_i \leq 50$, $1 \leq MAX_i \leq V \cdot (V - 1)$, $1 \leq MOD_i \leq 10^9$).

Output

Output Q lines, one line per query. The i -th line must contain MAX_i integers denoting the answers for the i -th query, taken modulo MOD_i . The j -th integer on the i -th line must denote the number of valid CHAs for the pair (V_i, j) .

Example

standard input	standard output
2	1 2 4 9 21 50 110 209 351 546
5 10 666013	1 2 4 9 1 1 6 0 7
6 9 10	