Problem L. Sub-cycle Graph

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Given an undirected simple graph with n ($n \geq 3$) vertices and m edges where the vertices are numbered from 1 to n, we call it a "sub-cycle" graph if it's possible to add a non-negative number of edges to it and turn the graph into exactly one simple cycle of n vertices.

Given two integers n and m, your task is to calculate the number of different sub-cycle graphs with n vertices and m edges. As the answer may be quite large, please output the answer modulo $10^9 + 7$.

Recall that

- A simple graph is a graph with no self loops or multiple edges;
- A simple cycle of n ($n \geq 3$) vertices is a connected undirected simple graph with n vertices and n edges, where the degree of each vertex equals to 2;
- Two undirected simple graphs with n vertices and m edges are different, if they have different sets of edges;
- Let $u < v$, we denote (u, v) as an undirected edge connecting vertices u and v. Two undirected edges (u_1, v_1) and (u_2, v_2) are different, if $u_1 \neq u_2$ or $v_1 \neq v_2$.

Input

There are multiple test cases. The first line of the input contains an integer T (about 2×10^4), indicating the number of test cases. For each test case:

The first and only line contains two integers n and m ($3 \leq n \leq 10^5$, $0 \leq m \leq \frac{n(n-1)}{2}$), indicating the number of vertices and the number of edges in the graph.

It's guaranteed that the sum of n in all test cases will not exceed 3×10^7.

Output

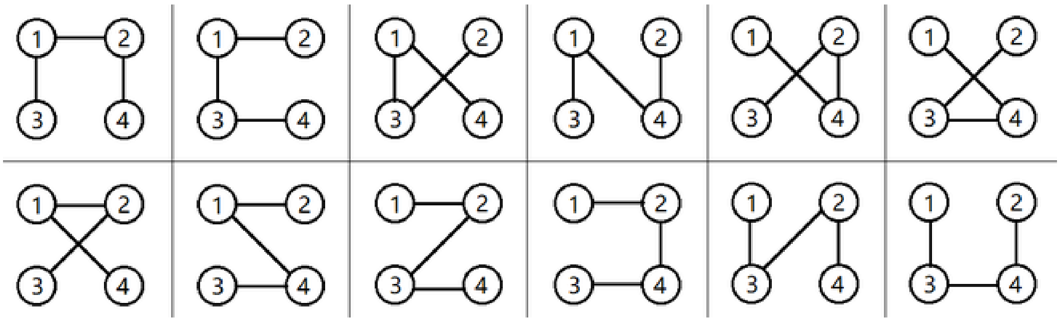
For each test case output one line containing one integer, indicating the number of different sub-cycle graphs with n vertices and m edges modulo $10^9 + 7$.

Example

standard input	standard output
3 4 2 4 3 5 3	15 12 90

Note

The 12 sub-cycle graphs of the second sample test case are illustrated below.


1
2
3
4