Problem H
Maximeter

Solve the problem below for T test cases.

You are given two integers M and D. You are interested in a rooted weighted tree with the following conditions.

- Each edge has a weight of a positive integer.
- For each vertex v of the tree, there exists **no** set of v's children of size **strictly greater** than M such that all the edges connecting v and this set of children all have the same weight.
- The diameter of the tree is not greater than D. The diameter of a tree is the maximum distance between any two vertices.

Find the maximum number of vertices of such a tree. As the number of vertices can be very large, find the vertex count modulo $998\,244\,353$.

Input

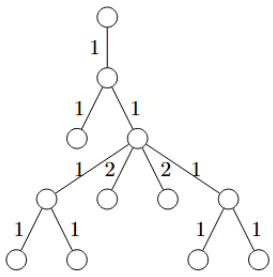
The first line contains an integer T ($1 \le T \le 100$), the number of test cases. Each of the next T lines contains two integers M and D ($1 \le M, D \le 10^9$) representing a case you have to solve.

Output

For each of the T test cases, output a single line containing the maximum number of vertices modulo $998\,244\,353$.

Sample Input 1	Sample Output 1
3 2 4 165 1 20 20	12 2 891869870

Explanation of Sample 1: The following illustrates, for the first case, a rooted tree with the maximum number of vertices.



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