Computer Virus



Suppose we have an n-dimensional supercomputer with an infinite number of processors. Every processor has a vector of n integers as its (n-dimensional) coordinates and can be thought of as a point in the n-dimensional space. Furthermore, at every n-dimensional lattice point, there is a processor. Two processors are called n-eighbors if their coordinate vectors are different in only one position, and the absolute difference of the numbers in that position is equal to 1. For example (0,0,0) and (1,0,0) are neighbors, and so are (-1,2,3,4) and (-1,2,3,3). But (0,0,0) and (1,0,1), and (1,2,3,4) and (1,2,3,2), are not neighbors.

Some processors of this computer are infected by a virus. At time 0, only one processor is infected. After every second, all uninfected processors that are neighbors with infected ones become infected too. Given n and t, calculate the number of processors that are infected after t seconds, modulo $(10^9 + 7)$.

Input Format

The first line contains an integer Q, the number of test cases. Each of the next Q lines contains two integers n and t, separated by a space.

Output Format

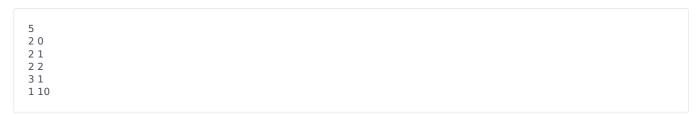
For every test case, write the answer in a single line.

Constraints

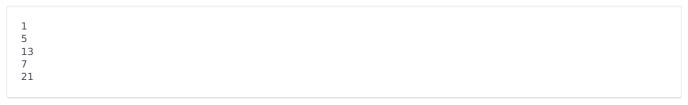
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1 \le Q \le 10^5
1 \le n \le 5 \times 10^6
0 < t < 10^{18}
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The sum of all \emph{n} 's in one file does not exceed $5 imes 10^6$

Sample Input



Sample Output



Explanation