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 *neighbors* 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

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

Sample Input

```
5
2 0
2 1
2 2
3 1
1 10
```

Sample Output

```
1
5
13
7
21
```

Explanation