Powers

Mr. J is bored with powers. The classic bigmod problem is perhaps too easy for him that he could solve it within a minute. Basically, you have to find the result of $(A^B \bmod C)$ in case some of you have not solved such problem. So familiar he is with bigmod problem, he invented a more challenge problem which is a modification of the bigmod problem.

Given **N** and **K**, determine the result of $(1^K + 2^K + 3^K \ldots + N^K)$ modulo 1000000007. You task is to help Mr. J to come up with the result of the modified problem.

Input

There will be multiple test cases. The first line of each test case will contain 2 integers **N** ($1 \leq$ **N** $\leq 10^9$) and **K** ($1 \leq$ **K** ≤ 50).

Output

For each test case, output the result of the computation.

Sample Input

```
4 2
13 5
```

Sample Output

```
30
1002001
```

Explanation

For the first test case, $1^2 + 2^2 + 3^2 + 4^2 = 30$.