F. The Sum of the k-th Powers

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

There are well-known formulas: , , . Also mathematicians found similar formulas for higher degrees.

Find the value of the sum modulo $10^9 + 7$ (so you should find the remainder after dividing the answer by the value $10^9 + 7$).

Input

The only line contains two integers n, k ($1 \le n \le 10^9, 0 \le k \le 10^6$).

Output

Print the only integer a — the remainder after dividing the value of the sum by the value $10^9 + 7$.

Examples

input
4 1
output
10

input
4 2
output
30

input
4 3
output
100

input
4 0
output
4