



Task Struktura

Petar and Ivana are bored during a long winter afternoon, so they decided to invent a game with numbers.

Petar takes a sheet of paper and randomly writes down n numbers. Each number is chosen **completely at random and independently** among the integers from 1 to k . Using this procedure, Petar creates an array a of n numbers.

Ivana says that she especially likes some arrays because they have a “hidden balance”, and she calls them structures. An array is a structure if the following conditions are satisfied:

- Every number from 1 to n appears in the array exactly once.
- For every index i ($1 \leq i \leq n$), it holds that $|a_i + i - n - 1| \leq 1$.

Ivana is interested in the probability that Petar, choosing the numbers completely at random, constructs an array that is a structure.

It can be proven that the answer can always be represented as a fraction $\frac{P}{Q}$, where P is an integer and Q is a positive integer not divisible by $10^9 + 7$. In that case, output $P \cdot Q^{-1} \pmod{10^9 + 7}$.

Input

The first line contains the natural numbers n and k ($1 \leq n, k \leq 10^9$), the numbers from the problem statement.

Output

Output a single number, the answer to the question from the problem statement.

Scoring

Subtask	Points	Constraints
1	17	$n, k \leq 7$
2	23	$n \leq 7, k \leq 100$
3	19	$n \leq 20, k \leq 100$
4	25	$n, k \leq 10^6$
5	26	No additional constraints.

Examples

input

2 1

output

0

input

2 2

output

500000004

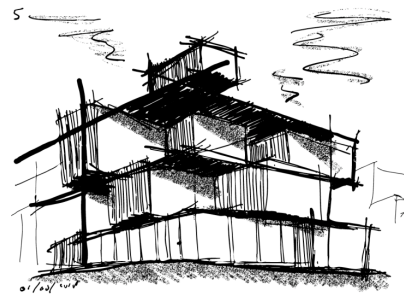
input

7 94

output

100976822

Clarification of the second example: The arrays a that Petar can construct are: $(1, 1)$, $(1, 2)$, $(2, 1)$, $(2, 2)$. The arrays that are structures are $(1, 2)$ and $(2, 1)$. The probability that Petar completely at





random obtains an array that is a structure is $\frac{2}{4}$, i.e. 500000004 (mod $10^9 + 7$).