



Task Festival

While Ivan was working at this year's chocolate festival, his boss gave him n different chocolate candies and asked him to prepare k chocolate boxes using those candies. Before he starts arranging the boxes, Ivan wants to find out in how many different ways he can arrange them, and then, after considering all the possibilities, he will choose the best arrangement.



The chocolate festival is a very important and serious event, so the candies must be perfectly arranged. To achieve this, Ivan knows that he must follow the following rules:

- Each box must contain at least one candy.
- Each candy goes in exactly one box.
- The boxes he uses are identical to each other, so swapping the contents of two boxes does not create a new arrangement. All that matters is which candies are in which box and in what order they are arranged.
- The largest candy is always the first in the box. We can assume that in any group of candies, the largest can always be uniquely determined.

In how many different ways can Ivan arrange the boxes? Since the number of ways can be very large, print it modulo $10^9 + 7$.

Input

The first and only line contains the natural numbers n and k ($1 \leq n \leq 5000$, $1 \leq k \leq n$), the number of candies, and the number of boxes.

Output

In the first and only line, print a single number - the number of ways Ivan can arrange the boxes modulo $10^9 + 7$.

Scoring

Subtask	Points	Constraints
1	8	$k = 1$
2	19	$k = 2$
3	14	$n \leq 10$
4	29	No additional constraints.

Examples

input

3 1

output

2

input

3 2

output

3

input

4 2

output

11



Clarification of the first example:

Let's label the candies from smallest to largest with 1, 2, and 3. We need to arrange them in one box, so all three candies must be in the same box. Candy 3 must be first because it is the largest. We can arrange the other two candies in two ways, so [3, 1, 2] and [3, 2, 1] are the only valid arrangements.

Clarification of the second example:

Let's label the candies from smallest to largest with 1, 2, and 3. We can arrange the candies in three ways: {[1], [3, 2]}, {[2], [3, 1]}, and {[3], [2, 1]}.