

Task Bojanje

Oliver is a rubber duck that, not only finds bugs, but also likes to paint. His latest painting has n parts, each coloured with a unique colour. After he got a lot of critiques his painting is too predictable, he decided to modify his painting in t iterations. In every iteration he will do the following steps:



1. Oliver will select uniformly at random an index i ($1 \leq i \leq n$), and memorize the colour on the i -th part of the painting.
2. Again, Oliver will select uniformly at random an index j ($1 \leq j \leq n$). He will repaint the j -th part of the painting with the colour of the i -th part of the painting. If the j -th part is already painted in that colour, there is no change. Note that i can be equal to j .

Now, Oliver is afraid his painting will become monotonous or boring. He considers a painting good if there are at least k different colours on it. Help him calculate the probability that his painting will be good at the end.

Input

The first line contains the numbers from the task statement n , t and k ($2 \leq k \leq n \leq 10$, $1 \leq t \leq 10^{18}$).

Output

In the first and only line output the answer modulo $10^9 + 7$.

Formally, let $m = 10^9 + 7$. It can be shown that the answer can be expressed as an irreducible fraction $\frac{p}{q}$, where p and q are integers and $q \not\equiv 0 \pmod{m}$. Output the integer equal to $p \cdot q^{-1} \pmod{m}$. In other words, output such an integer x that $0 \leq x < m$ and $x \cdot q \equiv p \pmod{m}$.

Scoring

Subtask	Points	Constraints
1	30	$k = n$
2	40	$t \leq 1000$
3	40	No additional constraints.

Examples

input

2 1 2

output

500000004

input

10 2 5

output

1

input

3 141592653589793 2

output

468261332

Clarification of the first example:

On the painting there are two colours, so the probability that it remains the same after one iteration is $\frac{1}{2}$.

Clarification of the second example:

After two iterations, the number of different colours can't go from 10 to less than 5, so in every case the painting will have at least 5 different colours.