Problem C. Inversions

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 seconds
Memory limit:	256 mebibytes

For a permutation p, denote the number of inversions in it as $inv(p)$. An inversion is a pair of indices $1 \le i < j \le |p|$ such that $p_i > p_j$.

Given are integers n and k. Find the sum of $inv(p)^k$ over all permutations p of length n. As the answer can be very large, find it modulo 998 244 353.

Input

The only line contains two integers, n and k ($1 \le n \le 10^{18}$, $1 \le k \le 1000$).

Output

Print the answer modulo 998 244 353.

Examples

standard input	*standard output*
3 2	19
5 3	22500

Note

In the first example:

In permutation $(1, 2, 3)$, there are 0 inversions.

In $(1, 3, 2)$, there is 1 inversion.

In $(2, 1, 3)$, there is 1 inversion.

In $(2, 3, 1)$, there are 2 inversions.

In $(3, 1, 2)$, there are 2 inversions.

In $(3, 2, 1)$, there are 3 inversions.

The answer is: $0^2 + 1^2 + 1^2 + 2^2 + 2^2 + 3^2 = 19$.