Ball Dumping Golf

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	1024 megabytes

There is one box labeled with each integer from 1 to N. Also, for each integer from 1 to N, there are M balls labeled with that integer.

These NM balls are shuffled and then distributed into the N boxes, with exactly M balls placed into each box.

There are $\frac{(NM)!}{(M!)^N}$ possible ways to place the balls (if all balls are considered distinguishable), and all of these arrangements occur with equal probability.

You will perform operations on these boxes and balls. One operation consists of the following steps.

1. Choose one box and go in front of that box.
2. If there is no ball in that box, terminate the operation.
3. Choose any one ball from that box and discard it outside the box.
4. Finally, go in front of the box whose label matches the label of the ball most recently discarded, and return to step 2.

Define your **score** as the number of operations required until all NM balls have been discarded. You want to **minimize** this score.

Find the **expected value** of the score when you act optimally, modulo 998244353.

Input

The first line contains N and M in this order, separated by spaces. ($1 \le N \le 10^5$, $1 \le M \le 100$)

Output

Print the answer.

Examples

standard input	standard output
2 2	166374060
3 1	831870296
100000 100	402978825

Note

For the first example, the possible ball arrangements and the corresponding optimal ways of operating are as follows.

- Put two balls labeled 1 into box 1, and two balls labeled 2 into box 2. (Probability 1/6)
  - In the first operation, go in front of box 1. From there, take out a ball labeled 1 and go in front of box 1. Then take out another ball labeled 1 and go in front of box 1 again. At this point, box 1 is empty, so terminate the operation.

  - In the second operation, go in front of box 2. From there, take out a ball labeled 2 and go in front of box 2. Then take out another ball labeled 2 and go in front of box 2 again. At this point, box 2 is empty, so terminate the operation.
  - In this case, the minimum achievable score is 2.

- Put one ball labeled 1 and one ball labeled 2 into each of box 1 and box 2. (Probability 2/3)
  - In the first operation, go in front of box 1. From there, take out a ball labeled 1 and go in front of box 1. Then take out a ball labeled 2 and go in front of box 2. Then take out a ball labeled 2 and go in front of box 2. Then take out a ball labeled 1 and go in front of box 1. At this point, box 1 is empty, so terminate the operation.
  - In this case, the minimum achievable score is 1.

- Put two balls labeled 2 into box 1, and two balls labeled 1 into box 2. (Probability 1/6)
  - In the first operation, go in front of box 1. From there, take out a ball labeled 2 and go in front of box 2. Then take out a ball labeled 1 and go in front of box 1. Then take out a ball labeled 2 and go in front of box 2. Then take out a ball labeled 1 and go in front of box 1. At this point, box 1 is empty, so terminate the operation.
  - In this case, the minimum achievable score is 1.

In summary, the minimum score is 2 with probability 1/6, and the minimum score is 1 with probability 5/6, so the expected score overall is 7/6. Therefore, output 166374060, which represents this value modulo 998244353.

Definition of expected value modulo 998244353

It can be proven that the expected value to be found is always a rational number. Also, under the constraints of this problem, if the expected value is written as a reduced fraction $\frac{y}{x}$, it is guaranteed that x is not divisible by 998244353.

In this case, there exists a unique integer z between 0 and 998244352, inclusive, satisfying $xz \equiv y \pmod{998244353}$. Output this z.