Problem K. King of the bar

Source file name:	king.c, king.cpp, king.java
Input:	Standard
Output:	Standard
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This weekend "el barecito" will finally open. The administrator is planning to place a roulette at midnight and make a game with all the present people. Customer will have a cup numbered from 1 to N. Not two cups will have the same number and all the numbers from 1 to N will appear. Of course the owner of "el barecito" only will give N cups to the first N customers. Next he will spin the roulette, which is numbered from 1 to N too, and a number will be chosen, name it K. The customer with the cup number K will go to the roulette and if he has an empty glass it will be filled, if it was full he will have to drink it up, and the roulette will be spun again. The game will finish when everybody has a filled cup.

The problem is that this game can be delayed forever and this would be mean bankrupt in the opening day. The owner of "el barecito" has contacted you as the king of the bar to help him not to get on bankruptcy he wants you to estimate in average, how many times the roulette will be spun until the end given the number of cups

Input

This problem consists of multiple cases, at most 10. Each test consists of a single line with a single number N the number of cups in the game.

- $1 \leq N \leq 10^5$

Output

For each case print just the average number of times the roulette will be spun until the game ends using modular arithmetic instead of real arithmetic, as the number grow very quickly you have to give the answer modulo $10^9 + 7$.

Example

Input	Output
2	4
3	10
4	333333357
5	666666714