
Necklace, again

Input file: `necklace.in`
Output file: `necklace.out`
Time limit: 2 seconds
Memory limit: 64 megabytes

Alyosha Popovich has beads colored in M different colors. He wants to make a necklace from these beads for Vasilisa the Beautiful. He believes that necklaces containing all M available colors in any $M + 1$ adjacent beads are especially *beautiful*. How many different beautiful necklaces of length N can he make? This number can be huge, so you are asked to calculate its remainder modulo $10^9 + 7$.

Input

Input file contains two positive integer numbers M and N ($2 \leq M < N \leq 100000$) separated by space.

Output

Output the number of different necklaces modulo $10^9 + 7$ into output file.

Scoring

Subtask 1 (20 points)

Additional limitation: $N \leq 8$

Points will be awarded only if solution passes all tests from the statement and the subtask.

Subtask 2 (40 points)

Additional limitation: $N \leq 500$

Points will be awarded only if solution passes all tests from the statement and the subtask.

Subtask 3 (40 points)

There is no additional limitations.

Points will be awarded only if solution passes all tests from the statement and the subtask.

Examples

<code>necklace.in</code>	<code>necklace.out</code>
2 6	26
5 8	8520

Note

Necklace is considered as a sequence of beads of length N .