

Algorithm Class Mini-Contest 3

Problem: LANGUAGE

Time Limit: 1.0 seconds

Memory Limit: 256 MB

Problem Description Peanut is trying to invent a new language. In this new language, there are N characters of the alphabet. For simplicity's sake, we number them from 1 to N . In this new special language, there are also words, made up of a number of letters. We can represent this word as an array A , where the i -th letter is A_i .

However, Peanut insists that for a word to exist, there must be a few conditions that are satisfied.

1. If $2 * A_i > N$,
 - There is no restriction on A_{i+1} .
 - A_i can be the last letter of a word.
2. If $2 * A_i \leq N$,
 - $A_i * 2 \leq A_{i+1}$
 - A_i cannot be the last letter of a word.

Peanut wonders how many possible M letter words could there be. Since this number can be very huge, Peanut only wants to know the number modulo $10^9 + 7$.

Input Format The first line of input will contain two integers, N and M .

Output Format The output should contain exactly one line with one integer, the number of possible words.

Limits These are the bounds on the input.

Subtask	Score	Additional Bounds
1	18	$1 \leq N \leq 2, 1 \leq M \leq 3,000$
2	29	$1 \leq N, M \leq 3,000$
3	53	$1 \leq N, M \leq 1,000,000$

Sample Input

2 3

Sample Output

3