Problem NoM

Input file	stdin
Output file	stdout

Marcel has recently taken up a new hobby: creating zen gardens. He quickly developed his own style, that uses $2N$ stones as garden features. Half of the stones are green (they are covered in moss) and are uniquely numbered from 1 to N, while the other half are grey (no moss grows on them) and are likewise uniquely numbered from 1 to N. To create a garden, Marcel will take the stones and place them in some order in a straight line, making sure the distance between any two consecutive stones is precisely 1 inch.

When it comes to judging the aesthetic appeal of a garden, all gardens are considered beautiful. However, there is one superstition that Marcel has about his gardens: if the distance between two stones that have the same number written on them is equal to a multiple of M inches, then the garden is considered M-**unlucky**, bringing great misfortune and `Code::Blocks` crashes upon the one who created that garden. Marcel will never create such a garden. Naturally, all other gardens are considered M-**lucky**.

As part of his journey to reach enlightenment, Marcel has set out to create all the M-**lucky** gardens that can be created. However, as he is also a forethoughtful and well organized individual, Marcel would like to know how many M-**lucky** gardens consisting of $2N$ stones exist before he embarks on his journey. Two gardens A and B are considered different if there exists an integer i, $1 \le i \le 2N$, such that:

- the colour of the ith stone in garden A is different from the colour of the ith stone in garden B, or
- the number written on the ith stone in garden A is different from the number written on the ith stone in garden B.

Input data

The first and only line of the input contains two integers N and M, meaning that Marcel will create gardens with $2N$ stones which are M-**lucky**.

Output data

On a single line, output the number of M-**lucky** gardens that contain $2N$ stones, **modulo** $10^9 + 7$.

Restrictions

- $1 \le M \le N \le 2\,000$

#	Points	Restrictions
1	9	$1 \le N, M \le 5$
2	12	$1 \le N, M \le 100$
3	13	$1 \le N, M \le 300$
4	18	$1 \le N, M \le 900$
5	48	No further restrictions

Examples

Input file	Output file
100 23	171243255
1 1	0

Explanation

In the second example, two gardens can be created. However, no garden is 1-**lucky**, as for both gardens the distance between the stones numbered with 1 is 1 inch, which is a multiple of $M = 1$ inches.