

# And DNA

Input file:            **standard input**  
Output file:         **standard output**  
Time limit:          2 seconds  
Memory limit:       1024 megabytes

Given two integers  $N$  and  $M$ , count the number of sequences  $A = (A_1, A_2, \dots, A_N)$  of length  $N$  where each  $A_i$  is an integer between 0 and  $M$  (inclusive), that satisfy the following condition:

- For all  $i = 1, 2, \dots, N$ ,  $A_i + (A_{i-1} \& A_{i+1}) = M$  holds, where  $A_0 := A_N$  and  $A_{N+1} := A_1$ . Here,  $\&$  denotes the bitwise AND operation.

Output the answer modulo 998244353.

## Input

The input is given from Standard Input in the following format:

$N \ M$
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- $3 \leq N \leq 10^9$
- $0 \leq M \leq 10^9$
- All input values are integers.

## Output

Print the answer in a single line.

## Examples

standard input	standard output
3 2	4
3 0	1
100 100	343406454

## Note

In the first example, there are 4 sequences that satisfy the condition:  $(0, 2, 2)$ ,  $(2, 0, 2)$ ,  $(2, 2, 0)$ ,  $(1, 1, 1)$ .

In the second example, the only sequence that satisfies the condition is  $(0, 0, 0)$ .