# Base2-Palindromes

A positive integer $N$ is a *base-b palindrome* if the base-$b$ representation of $N$ is a palindrome, i.e. reads the same way in either direction. For instance, 7 (base 10) is a palindrome in any base greater than or equal to 8. It is also a palindrome in base 2 (111) and 6 (11), but not in 3 (21), 4 (13), 5 (12), or 7 (10). The first four base 2 palindromes (written in base 10) are 1, 3, 5, and 7.

## Task

You are supposed to find the $M$-th base-2 palindrome and output its base 10 representation.

## Input

The input is a single line with a single positive integer $M \leq 5\ 0000$ in base 10.

## Output

The output for input $M$ should be a single line with the base 10 representation of the $M$-th base-2 palindrome.

| **Sample Input 1** | **Sample Output 1** |
|---|---|
| 1 | 1 |

| **Sample Input 2** | **Sample Output 2** |
|---|---|
| 3 | 5 |