

Problem C

Base-2 Palindromes

Problem ID: palindrome

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 $M \leq 50\,000$ 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

1

Sample output 1

1

Sample input 2

3

Sample output 2

5
