

# 1414. Find the Minimum Number of Fibonacci Numbers Whose Sum Is K

## Description

Given an integer  $k$ , *return the minimum number of Fibonacci numbers whose sum is equal to  $k$* . The same Fibonacci number can be used multiple times.

The Fibonacci numbers are defined as:

- $F_1 = 1$
- $F_2 = 1$
- $F_n = F_{n-1} + F_{n-2}$  for  $n > 2$ .

It is guaranteed that for the given constraints we can always find such Fibonacci numbers that sum up to  $k$ .

### Example 1:

**Input:**  $k = 7$   
**Output:** 2  
**Explanation:** The Fibonacci numbers are: 1, 1, 2, 3, 5, 8, 13, ...  
For  $k = 7$  we can use  $2 + 5 = 7$ .

### Example 2:

**Input:**  $k = 10$   
**Output:** 2  
**Explanation:** For  $k = 10$  we can use  $2 + 8 = 10$ .

### Example 3:

**Input:**  $k = 19$   
**Output:** 3  
**Explanation:** For  $k = 19$  we can use  $1 + 5 + 13 = 19$ .

### Constraints:

- $1 \leq k \leq 10^9$

