Your car starts at position 0 and speed +1 on an infinite number line. Your car can go into negative positions. Your car drives automatically according to a sequence of instructions 'A' (accelerate) and 'R' (reverse):

* When you get an instruction 'A', your car does the following:
  + position += speed
  + speed \*= 2
* When you get an instruction 'R', your car does the following:
  + If your speed is positive then speed = -1
  + otherwise speed = 1
* Your position stays the same.

For example, after commands "AAR", your car goes to positions 0 --> 1 --> 3 --> 3, and your speed goes to 1 --> 2 --> 4 --> -1.

Given a target position target, return *the length of the shortest sequence of instructions to get there*.

**Example 1:**

Input: target = 3  
Output: 2  
Explanation:   
The shortest instruction sequence is "AA".  
Your position goes from 0 --> 1 --> 3.

**Example 2:**

Input: target = 6  
Output: 5  
Explanation:   
The shortest instruction sequence is "AAARA".  
Your position goes from 0 --> 1 --> 3 --> 7 --> 7 --> 6.

**Constraints:**

* 1 <= target <= 104