836. Race Car

Difficulty : Hard

https://leetcode.com/problems/race-car

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 <= 10^4`