

818. Race Car

Description

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`

