702 - Search in a Sorted Array of Unknown Size

Given an integer array sorted in ascending order, write a function to search `target` in `nums`. If `target` exists, then return its index, otherwise return `-1`. **However, the array size is unknown to you**. You may only access the array using an `ArrayReader` interface, where `ArrayReader.get(k)` returns the element of the array at index `k` (0-indexed).

You may assume all integers in the array are less than `10000`, and if you access the array out of bounds, `ArrayReader.get` will return `2147483647`.

Example 1:

Input: `array` = [-1,0,3,5,9,12], `target` = 9 **Output:** 4 **Explanation:** 9 exists in `nums` and its index is 4

Example 2:

Input: `array` = [-1,0,3,5,9,12], `target` = 2 **Output:** -1 **Explanation:** 2 does not exist in `nums` so return -1

```
public int search(ArrayReader reader, int target) {
        if (reader.get(0) == target)
            return 0;
        int low = 0, high = 1;
        while (reader.get(high) < target) {
            low = high + 1;
            high <<= 1;
        }
        while (low <= high) {
            int mid = ((high - low) >> 1) + low;
            int num = reader.get(mid);
            if (num == target)
                return mid;
            else if (num > target)
                high--;
            else
                low++;
        }
        return -1;
    }
```