input [1, 1, 1, 2, 1]   target 2.   expected output: true

left   mid   right

[1, 1, 1, 2, 1]

$mid = \frac{1}{2}(0+4) = 2$

nums[mid] = nums[left] = nums[right]

left = 0+1 = 1

left mid   right

[1, 1, 1, 2, 1]

$mid = \lfloor \frac{1}{2}(1+4) \rfloor = 2$

nums[mid] = nums[left] = nums[right]

left = 1+1 = 2

left   right

[1, 1, 1, 2, 1]

      mid

$mid = \frac{1}{2}(2+4) = 3$

nums[mid] = target

return true