492 Construct the Rectangle

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For a web developer, it is very important to know how to design a web page's size. So, given a specific rectangular web page’ s area, your job by now is to design a rectangular web page, whose length L and width W satisfy the following requirements:
1. The area of the rectangular web page you designed must equal to the given target area.
2. The width W should not be larger than the length L, which means L >= W.
3. The difference between length L and width W should be as small as possible.
You need to output the length L and the width W of the web page you designed in sequence.
Example:
Input: 4
Output: [2, 2]
Explanation: The target area is 4, and all the possible ways to construct it are [1,4], [2,2], [4,1]. But according to requirement 2, [1,4] is illegal; according to requirement 3, [4,1] is not optimal compared to [2,2]. So the length L is 2, and the width W is 2.
Note:

1. The given area won't exceed 10,000,000 and is a positive integer
2. The web page's width and length you designed must be positive integers.

来自 <https://leetcode.com/problems/construct-the-rectangle/description/>

解析：
The W is always less than or equal to the square root of area
so we start searching at sqrt(area) till we find the result
w总是小于或者等于面积的平方根，若非如此，那么W大于面积的平方根，
进而L大于W也大于面积的平方根，最终L*W>平方根*平方根=面积不符合题意。
所以W小于或者等于面积的平方根。

来自 <https://leetcode.com/problems/construct-the-rectangle/discuss/97210/3-line-Clean-and-easy-understand-solution>

Solution for Python3：

```
1  class Solution2:
2      def constructRectangle(self, area):
3          """
```

```
        :type area: int
        :rtype: List[int]
        """
        import math
        w = int(math.sqrt(area))
        while area % w:
            w -= 1
        return [area // w, w]
```

Solution for C++:

```
class Solution {
public:
    vector<int> constructRectangle(int area) {
        int w = int(sqrt(area));
        while (area % w)
            w--;
        return vector<int> {area / w, w};
    }
};
```