

12256 Making Quadrilaterals

A quadrilateral is a simple geometric shape. The formal definition of Quadrilateral for this problem can be given as

“A quadrilateral is a simple polygon with four sides, having a strictly positive area.”

If you are given four rods made of steel and having integer length, you may or may not be able to make a quadrilateral with it. For example you cannot make a quadrilateral with four rods of length 4, 5, 8 and 17 units but you can make a quadrilateral with four rods of length 2, 3, 4 and 5 units respectively. Now you have to supply n rods to the Architecture department of a University. But the University authority has asked you to make the length of the rods such that no four of them can be used to make a Quadrilateral. They are afraid that if the students can make such shapes then they will use up some of the rods in the sculptures they make. Given the value of n , what is the minimum possible length of the longest rod? You can assume that:



1. Only one rod has to be used as one side of the Quadrilateral.
2. A rod cannot be divided into two smaller pieces.
3. Two or more rods cannot be joined to make a longer rod.

Input

The input file contains around 100 line of input. Each line contains an integer, which denotes the value of n ($3 < n < 61$). A line containing a '0' (zero) terminates the input.

Output

For each line of input produce one line of output. This line contains serial of output followed by a decimal integer that denotes the shortest possible length of longest rod. You can safely assume that this length will fit in a 64-bit signed integer. Look at the output for sample input for details.

Illustration of first Sample Input: If you have four sticks of length 1, 1, 1 and 3 then you cannot make a quadrilateral with them. So when $n = 4$, the minimum possible length of the longest rod is 3.

Sample Input

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4
6
0
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Sample Output

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Case 1: 3
Case 2: 9
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