

Problem 6 : Fermat vs. Gauss

Problem

In the mansion of Mathematicus Supremus in heaven live all the great mathematicians of yesteryear's. However, even after losing their mortal self, these mathematicians have not stopped doing mathematics. They always come up with puzzles and riddles and baffle their fellow theoreticians with mind boggling questions. Gauss and Fermat happen to be among the most enthusiastic of these problem posers. Both are always trying to outsmart the other to establish their supremacy in the group.

The mathematicians of this mansion dine on a large round table. A number of chairs are arranged around the table. One night, Gauss and Fermat happened to reach for the dinner quite early. Losing no opportunity to show his supremacy, Fermat said: "Hey Gauss, there is some time left. Why not play a game?". Gauss, as always ready to outsmart Fermat, readily agreed. Fermat then said: "Okay Gauss, the game will go like this. You will first sit on a chair. Then you will call out a number k between 1 to n , where n is the number of chairs. I will then call out either clockwise or anticlockwise. If I call out clockwise, then you sit on the k th chair in the clockwise sense from the chair you are presently sitting on, and if I call out anticlockwise you sit on the k th chair in the anticlockwise sense. You will again choose a number, and I will again call out whether to move clockwise or anticlockwise, and so on. In this way, you have to sit on the maximum possible number of chairs". Gauss replied: "Hey Fermat, this is damn easy. I am sure that even any school kid will be able to play this game quite easily!".

Input

The input consists of several lines. Each line has a number n , the number of chairs around the dining table. The input is terminated by the case $n = 0$, which is not to be processed. n will always fit in a signed 64 bit integer representation.

Output

For each input n , print the maximum number of chairs that Gauss can sit on. It should be assumed that Gauss and Fermat use their intellectual ability to the maximum possible extent.

Sample Input

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4
6
12
0
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Sample Output

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4
4
8
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