

Problem J

OPENING DOORS

21th June!! Holidays at last!!

That's what everyone in the school thought when the bell rang. It was time to leave the class and go away forever (or until September). Dima was running to the exit when he saw that paper on the wall:

*Don't forget to unlock all the TAQUILLAS so that we can clean then in summer.
The principal.*

Oh, no! Dima forgot to unlock it! So he had to go to the corridor where the TAQUILLAS were. When he got there, all TAQUILLAS had been already unlocked. Some of them were open and some of them were closed. TAQUILLAS were numbered from 1 to 90 (the number of boys in the school) and he had the last one. So he walked along the long corridor. While he reached his TAQUILLA, he started to think why some of the doors were open and some closed. Then he invented a method to keep some open and some closed:

Once all the TAQUILLAS were unlocked, the boy with TAQUILLA number 1 opened all doors. Then the boy with TAQUILLA number 2 closed the doors multiple of 2. Then the boy with TAQUILLA number 3 changed the status of all doors multiple of 3 (he opens doors 6,12...and he closes doors 3, 9...)...and until everyone, including Dima, had done so.

Now he wants to know whether that was what happened or not. As a first-sight method, he wants to see if the door with the biggest number that is open matches the door with the biggest number that keeps open using his method. That's where he needs your help. He could do it by hand, but he also wants to check it next year (and the number of students may change), so he asked you for a program that simulates it for any number of students.

Each line in the input will contain a single number N ($1 \leq N \leq 10^{100}$), indicating the number of boys in the school (you never know what the number of students will be if Earth population keeps growing...).

Input will be terminated by a test case with $N=0$. That line shouldn't be processed. For each line in the input, write a line with the number of the door with the biggest number that keeps open.

Sample Input	Sample Output
1	1
90	9
0	

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