

Task 1. GUESS THE NUMBER

You play a game against jury's program. Your program must guess a number N , chosen by the jury's program at the start of the game. The rules are as following: your program determines a number and sends it to jury's program. Then you get a response by the jury which can be one of three possibilities – "This is the number", "Your number is smaller than jury's number" or "Your number is greater than jury's number". If you didn't guess then the process repeats. When you are sure you know the jury's number you send your answer to the jury and the game is over.

Task

Write a function `guess()`, which will compile with the jury's program and must maintain the dialog with it until the number is guessed.

Implementation details

You are given the following two functions:

```
int quest(long long n);
```

and

```
void res(long long answer);
```

Through calling function **quest** your program asks jury's program about a number, passed as parameter `n`. The function then returns one of three results:

- 0 – this is jury's number
- 1 – your number is smaller than jury's number
- 2 – your number is greater than jury's number

This function is to be called multiple times until your program decides that it's ready with the answer.

Through calling function **res** your program should pass the guessed number as value of parameter `answer`. This function should be called a single time during the execution of your program – it will finish the game.

You should submit to the grading system a file **guess.cpp** or **guess.c**, which contains a function *void guess()*. It may contain other code, necessary for correct execution of the program, but should not contain *main()*.

At the beginning your file must contain `#include "guess.h"`

Constraints

$$1 \leq N \leq 10^{18}$$

Example

Let number of the jury be 5. The dialogue between your program and jury's program can look like this:

guess calls function:	The function returns:
quest(1)	1
quest(2)	1
quest(3)	1
quest(4)	1
quest(5)	0
res(5)	

Grading

If your program cannot guess the number in the given time limit or the answer is wrong you will receive 0 points for the test case. If you guess the number with Q questions you will receive $P = \min(10, \lfloor (Q_{\min}/Q) * 10 \rfloor)$ points, where: $\lfloor x \rfloor$ is the integer part of x and Q_{\min} is the minimal count of questions by which it is guaranteed that any number in the restrictions interval can be guessed.

Local testing

In order to be able to test your function *guess()* locally you will get files *Lgrader.cpp* and *guess.h*. Compile them together with your file **guess.cpp** (or **guess.c**) and you will receive a program that reads a number from the standard input and calls *guess()*. On the standard output the program will print the number which your function thinks is the answer and the count of questions which were used during the process.