

Task Guess the Number

 0.1 sec.  256 MB

Bobi has thought of a positive integer x . You have to guess it by asking questions of the kind "Is Bobi's number greater than or equal to another number y ?"

Implementation details

You have to implement the following function:

```
int solve(int N);
```

This function is called by the jury and must return the number x . To do so it may call the following function:

```
bool query(int y);
```

This function returns `true` if $x \geq y$, and `false` otherwise.

Constraints

- $1 \leq x \leq N \leq 2 \cdot 10^9$

Scoring

If your solution returns the wrong number, you get 0 points on the respective test. Otherwise, let your number of calls to `query` be Q . Then the points for a given test are computed by the following formula: $points = \min(0.1 + 0.9(\frac{\lceil \log_2 N \rceil + 1}{Q+1})^2, 1)$.

Example

Jury	Contestant
<code>solve(100)</code>	<code>query(24)</code>
<code>false</code>	<code>query(5)</code>
<code>true</code>	<code>query(4)</code>
<code>true</code>	Returns 5.



Sample grader

The first line contains the numbers x and N .