1458 - The Killer Professor

Description

This is your first college programming lesson. Excited, right?!! But your happiness is not destined to be so long. Your new professor is known as "The Killer" within the university because of his extremely difficult lessons. He enters, writes the following pseudocode on the board:

```
procedure solve(X)
len := 100000;
first := 0;
while len > 0 do begin
half := len / 2;
middle := first + half;
if 2 ^ middle < X then
begin
first := middle + 1;
len := len - half - 1;
end
else
len := half;
end
return first;
```

and says: "The one who is able to tell the output of this algorithm for a given input deserves to be here, everyone else will be ruled out from my class". You get too sad very quickly! This is not a killer, this is pure evil!!!

Input specification

The only line in the input consists the binary representation of number X (1 <= X <= 2^100000).

Output specification

The result of the algorithm for the given X.

Sample input

```
1010
```

Sample output

```
4
```

Hint(s)

Source	Ray W. Robinson Valiente
Added by	**ejaltuna**
Addition date	2011-10-13 12:05:23.0
Time limit (ms)	25000
Test limit (ms)	2500
Memory limit (kb)	65536
Output limit (mb)	64
Size limit (bytes)	100000
Enabled languages	C C# C++ Java Pascal Perl PHP Python Ruby Text