Problem X. Strange Functions

Time limit	2000 ms
Mem limit	262144 kB

Let's define a function $f(x)$ (x is a positive integer) as follows: write all digits of the decimal representation of x backwards, then get rid of the leading zeroes. For example, $f(321) = 123$, $f(120) = 21$, $f(1000000) = 1$, $f(111) = 111$.

Let's define another function $g(x) = \dfrac{x}{f(f(x))}$ (x is a positive integer as well).

Your task is the following: for the given positive integer n, calculate the number of different values of $g(x)$ among all numbers x such that $1 \le x \le n$.

Input

The first line contains one integer t ($1 \le t \le 100$) — the number of test cases.

Each test case consists of one line containing one integer n ($1 \le n < 10^{100}$). This integer is given without leading zeroes.

Output

For each test case, print one integer — the number of different values of the function $g(x)$, if x can be any integer from $[1, n]$.

Examples

Input	Output
5 4 37 998244353 1000000007 12345678901337426966631415	1 2 9 10 26

Note

Explanations for the two first test cases of the example:

1. if $n = 4$, then for every integer x such that $1 \leq x \leq n$, $\dfrac{x}{f(f(x))} = 1$;
2. if $n = 37$, then for some integers x such that $1 \leq x \leq n$, $\dfrac{x}{f(f(x))} = 1$ (for example, if $x = 23$, $f(f(x)) = 23$, $\dfrac{x}{f(f(x))} = 1$); and for other values of x, $\dfrac{x}{f(f(x))} = 10$ (for example, if $x = 30$, $f(f(x)) = 3$, $\dfrac{x}{f(f(x))} = 10$). So, there are two different values of $g(x)$.