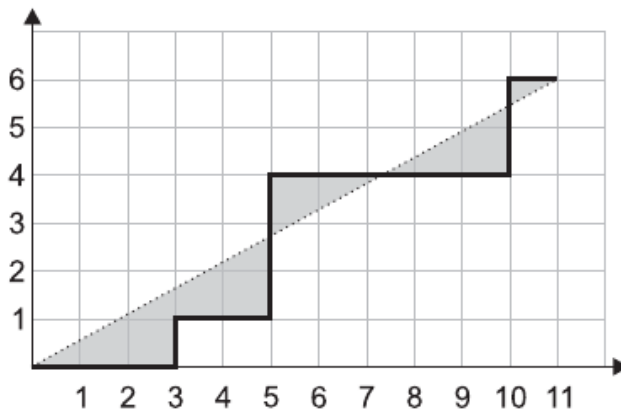


## 3246 Geometry?! Why Not??

Consider a 2D path drawn in the following manner: Starting at the origin point, we can move only up or right. The path will be described as a string made of zero or more  $\{‘U’, ‘R’\}$  letters. For each ‘U’ we’ll move one unit up, while ‘R’ moves one unit to the right. In the following figure, the path constructed by the string “RRRURRUUUURRRRRUUR” is drawn in a thick line.

Imagine now that we draw a straight line that connects the origin point to the last point in the path (The line that is drawn in dots in the figure).

We want to compute the total area that falls between the straight line and the path (the grayed area in the figure).



### Input

Your program will be tested on one or more test cases. Each test case is described on a separate line. The path of each test case is described as a string made of one or more  $\{‘U’, ‘R’\}$  letters and terminated by letter ‘S’.

All the test-cases paths can be drawn on a grid of size  $1,000 \times 1,000$ .

The last line of the input file is made of a single ‘S’ character and is not part of the test cases.

### Output

For each test case, write the result on a separate line using the following format:

$k. a$

where  $k$  is the test case number (starting from 1).  $a$  is the area rounded to three decimal places.

### Sample Input

```
RRRURRUUUURRRRRUURS
RUURS
S
```

### Sample Output

```
1. 8.515
2. 1.000
```