Professor Octastichs has invented a new programming language, Smeech. An expression in Smeech may be a positive or negative integer, or may be of the form $(p\ e_1\ e_2)$ where p is a real number between 0 and 1 (inclusive) and e_1 and e_2 are Smeech expressions.

The value represented by a Smeech expression is as follows:

- An integer represents itself

- With probability p, $(p\ e_1\ e_2)$ represents $x + y$ where x is the value of e_1 and y is the value of e_2; otherwise it represents $x - y$.

Given a Smeech expression, what is its expected value?

Input

Input consists of several Smeech expressions, one per line, followed by a line containing '()'.

Output

For each expression, output its expected value to two decimal places.

Sample Input

```
7
(.5 3 9)
()
```

Sample Output

```
7.00
3.00
```