Executive Summary (100 points)

Introduction

As part of the roll-out of Chatter5's new fifth-generation mobile network, the Marketing Department has come up with a set of possible locations for Receivers and Transmitters. They need you to work out what the rate of coverage is as soon possible so they can brag about it to the CEO. They've given you a list of Transmitters and Receivers, but as you might expect from those 'creative' types it's all jumbled up. At least they also told you that the first line of the file is the range of all the Transmitters in that particular batch...

Input Specifications

You will be given a data file containing the locations of Transmitters and Receivers, specified by an appropriate letter and then a set of X, Y co-ordinates.

Output Specifications

You should output a number representing the percentage of Receivers able to receive a signal, correct to 2 decimal places. Do not print anything but the value itself.

Sample Input/Output

Input

```
7.97
R 37.848, 5.532
T 4.869, 21.312
T 10.822, 47.223
T 41.918, 17.444
T 1.37, 46.536
R 46.412, 35.199
R 33.235, 14.533
R 44.109, 17.138
R 6.976, 45.489
R 40.78, 41.143
R 27.529, 3.723
R 46.367, 47.236
R 3.805, 48.776
R 4.653, 39.545
T 0.404, 12.176
R 0.726, 49.389
R 15.593, 48.194
R 26.246, 45.088
R 29.698, 17.864
R 26.962, 18.103
R 9.872, 30.458
R 37.712, 41.678
R 12.659, 44.686
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T 25.539, 26.296
R 25.127, 42.819
T 39.112, 25.675
R 25.051, 28.982
R 45.286, 43.117
T 2.224, 3.969
R 22.052, 25.909
R 38.367, 7.173
T 43.407, 9.501
R 19.113, 18.025
```

Output

```
45.83
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