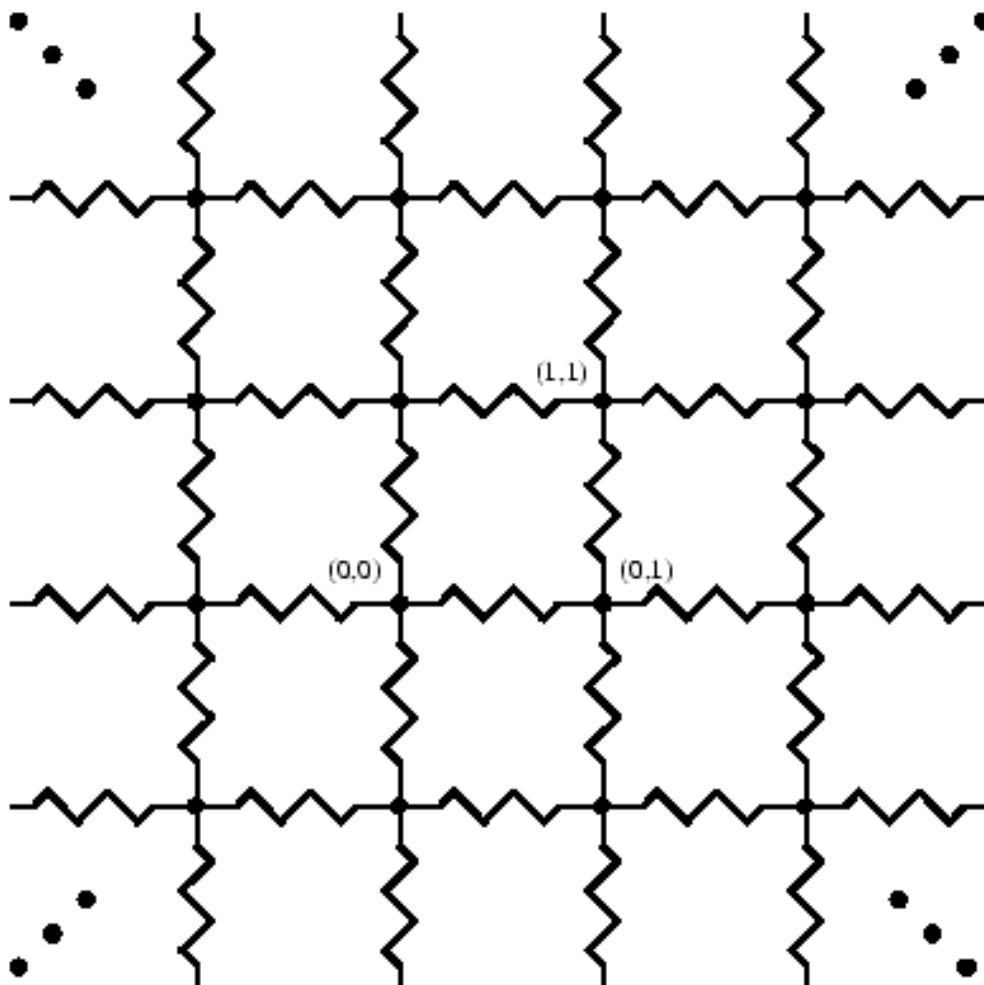


Given an infinite 2D Lattice of resistors as shown below, where the resistance on each edge between neighboring junctions is exactly 1. Pick any junction O and assign the coordinate $(0,0)$. What is the total resistance between O and some other junction $J = (i,j)$?

Hint: There is a surprising Dynamic Programming solution, but how do you get it to fit under the memory requirement? :-)



Input

A number of inputs. One testcase on each line. The input of each test case is simply the values i, j on a single line. All values will fit inside an unsigned 64 bit integer.

Output

For each input value, output the total resistance between O and J on a single line. Round to 3 digits after the decimal.

Sample Input

```
0 0
0 1
0 2
0 3
0 4
```

Sample Output

```
0.000
0.500
0.727
0.861
0.954
```