A graph G has n nodes, v_1, v_2, $\ldots$, v_n such that v_i is connected to v_{i+1} for $0 \leq i \leq n-2$. The last node, v_n is connected to all nodes v_j for $0 \leq j \leq n-1$. Each edge of the graph has a single resistor with resistance of 1 ohm. Given 2 nodes, v_i and v_j, find the equivalent resistance between these 2 nodes.

Note that when we add a power source to the 2 nodes with I amperes, then each node on the graph has some fixed voltage, and each edge has some fixed current, such that the inward current equals the outward current on each node that is not v_i (has net input current I) and not v_j (has net output current J). Moreover, Ohm's law is followed, which says that $R = V/I$, where I is the current in amperes, V the voltage in volts and R the resistance in ohms.

This is all the information needed to solve the problem.

Input

A number of of inputs (≤ 10000), each starting with n, i, j on a line ($1 \leq i < j \leq n \leq 10000$).

Output

For each input, output the equivalent resistance between v_i and v_j, rounded to 6 digits after the decimal.

Sample Input

```
3 1 2
3 1 3
```

Sample Output

```
0.298142
0.447214
```