Pie

Time limit: 1.0s **Memory limit:** 256M

There are N people labelled from 1 to N. You have a whole pie and will perform M operations. In the i^{th} operation, you will give $p_i\%$ of the **remaining** pie to person a_i.

Find the proportion of pie obtained by each person after all operations are performed.

Constraints

$1 \leq a_i \leq N \leq 30$

$1 \leq M \leq 30$

$0 \leq p_i \leq 100$

Input Specification

The first line contains two space-separated integers, N and M.

The i^{th} of the following M lines contains two space-separated integers, a_i and p_i.

Output Specification

Output N lines, where the i^{th} line contains a single number, representing the proportion of the pie obtained by person i.

Your answer will be accepted if every value is within an absolute error of 10^{-6}.

Sample Input 1

```
3 3
3 13
1 90
3 95
```

Sample Output 1

```
0.783000
0.000000
0.212650
```

Explanation for Sample 1

Initially, the remaining pie is 1.0.

- In the 1st operation, person 3 got $1.0 * 0.13 = 0.13$ proportion of pie, and the remaining pie is $1 - 0.13 = 0.87$.
- In the 2nd operation, person 1 got $0.87 * 0.90 = 0.783$ proportion of pie, and the remaining pie is $0.87 - 0.783 = 0.087$.
- In the 3rd operation, person 3 got $0.087 * 0.95 = 0.08265$ proportion of pie.

In total, person 1 got 0.783, person 2 got 0, and person 3 got $0.13 + 0.08265 = 0.21265$ proportion of pie.

Sample Input 2

```
3 5
2 20
3 50
1 40
2 30
3 20
```

Sample Output 2

```
0.160000
0.272000
0.433600
```