Expected Time to Love

Alice has a problem. She loves Bob but is unable to face up to him. So she decides to send a letter to Bob expressing her feelings. She wants to send it from her computer to Bob's computer through the internet.

The internet consists of N computers, numbered from 1 to N. Alice's computer has the number 1 and Bob's computer has the number N.

Due to some faulty coding, the computers start behaving in unexpected ways. On recieving the file, computer i will forward it to computer j with probability P_{ij}. The time taken to transfer the file from computer i to computer j is T_{ij}.

Find the expected time before Bob finds out about Alice's undying love for him.

Note: Once the letter is recieved by Bob's computer, his computer will just deliver it to Bob and stop forwarding it.

Input

First line contains T, the total test cases.

Each test case looks as follows:

First line contains N, the total number of computers in the network.

The next N lines contain N numbers each. The j'th number on the i'th line is the value P_{ij} in percents.

The next N lines contain N numbers each. The j'th number on the i'th line is the value T_{ij}.

Output

Output a single line with a real number - The expected time of the transfer.

Your output will be considered correct if each number has an absolute or relative error less than 10^{-6}.

Constraints

$N \le 100$

$T \le 5$

For all i, $P_{i1} + P_{i2} + \ldots + P_{iN} = 100$

$P_{NN} = 100$

For all i, j, $0 \le T_{ij} \le 10000$

You can safely assume that from every computer, the probability of eventually reaching Bob's computer is greater than 0.

Example

Sample Input:

```
2
4
0 50 50 0
0 0 0 100
0 0 0 100
0 0 0 100
0 2 10 0
0 0 0 0
0 0 0 0
0 0 0 0
2
99 1
0 100
10 2
0 0
```

Sample Output:

```
6.000000
992.000000
```