7740 Coding Contest

A coding contest will be held in this university, in a huge playground. The whole playground would be divided into N blocks, and there would be M directed paths linking these blocks. The i-th path goes from the u_i-th block to the v_i-th block. Your task is to solve the lunch issue.

According to the arrangement, there are s_i competitors in the i-th block. Limited to the size of table, b_i bags of lunch including breads, sausages and milk would be put in the i-th block. As a result, some competitors need to move to another block to access lunch. However, the playground is temporary, as a result there would be so many wires on the path.

For the i-th path, the wires have been stabilized at first and the first competitor who walker through it would not break the wires. Since then, however, when a person go through the i-th path, there is a chance of p_i to touchthe wires and affect the whole networks. Moreover, to protect these wires, no more than c_i competitors are allowed to walk through the i-th path.

Now you need to find a way for all competitors to get their lunch, and minimize the possibility of network crashing.

Input

The first line of input contains an integer t which is the number of test cases. Then t test cases follow.

For each test case, the first line consists of two integers N ($N \leq 100$) and M ($M \leq 5000$). Each of the next N lines contains two integers s_i and b_i ($s_i, b_i \leq 200$).

Each of the next M lines contains three integers u_i, v_i and c_i ($c_i \leq 100$) and a float-point number p_i ($0 < p_i < 1$).

It is guaranteed that there is at least one way to let every competitor has lunch.

Output

For each turn of each case, output the minimum possibility that the networks would break down. Round it to 2 digits.

Sample Input

```
1
4 4
2 0
0 3
3 0
0 3
1 2 5 0.5
3 2 5 0.5
1 4 5 0.5
3 4 5 0.5
```

Sample Output

```
0.50
```