

5804 Route Redundancy

A city is made up exclusively of one-way streets. Each street in the city has a capacity, the maximum number of cars it can carry per hour. Any route (path) also has a capacity, which is the minimum of the capacities of the streets along that route.

The *redundancy ratio* from point A to point B is the ratio of the maximum number of cars that can get from A to B in an hour using all routes simultaneously, to the maximum number of cars that can get from A to B in an hour using just one route. The minimum redundancy ratio is the number of cars that can get from A to B in an hour using all possible routes simultaneously, divided by the capacity of the single route with the largest capacity.

Input

The first line of input contains a single integer P , ($1 \leq P \leq 1000$), which is the number of data sets that follow. Each data set consists of several lines and represents a directed graph with positive integer weights.

The first line of each data set contains five space separated integers. The first integer, D is the data set number. The second integer, N ($2 \leq N \leq 1000$), is the number of nodes in the graph. The third integer, E , ($E \geq 1$), is the number of edges in the graph. The fourth integer, A , ($0 \leq A < N$), is the index of point A. The fifth integer, B , ($0 \leq B < N$, $A \neq B$), is the index of point B.

The remaining E lines describe each edge. Each line contains three space separated integers. The first integer, U ($0 \leq U < N$), is the index of node U. The second integer, V ($0 \leq V < N$, $V \neq U$), is the index of node V. The third integer, W ($1 \leq W < 1000$), is the capacity (weight) of the path from U to V.

Output

For each data set there is one line of output. It contains the data set number (N) followed by a single space, followed by a floating-point value which is the minimum *redundancy ratio* to 3 digits after the decimal point.

Sample Input

```
1
1 7 11 0 6
0 1 3
0 3 3
1 2 4
2 0 3
2 3 1
2 4 2
3 4 2
3 5 6
4 1 1
4 6 1
5 6 9
```

Sample Output

1 1.667