



E • 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.



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Sample Input	Sample Output
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	1 1.667