

MinCut Query

[English](#)

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You are given a weighted undirected graph with edge weight denoting the capacity of the edge.

Now given a number x , output how many unordered (s,t) pairs are there in the graph such that $\text{minCut}(s,t) \leq x$.

A Cut is a partition of the vertices of a graph into two sets such that s and t belong to different set after the partition.

In weighted graphs, the size of a cut is defined to be the sum of weights of the edges crossing the cut. minCut is a cut whose size is the least possible.

Input

First line contains T , the number of test cases.

For each test case the first line contains two integers n and m , denoting the number of vertices and the number of edges in the graph.

Next m lines contain 3 integers u,v,c denoting an undirected of capacity c between vertices u and v ; $1 \leq u,v \leq n$.

Next line contains q , the number of queries. Next q line contains one number each which denotes the input x for i th query.

Note: there can be multiple edges between a pair of vertices.

Output

The output for each test case should consist of q lines with one integers in each of them denoting the number of unordered (s,t) pairs corresponding to that query. Output a blank line BETWEEN the test cases.

Note: The timelimit for the problem is somewhat strict.

Example

Input:

```
1
5 0
1
0
```

Output:

```
10
```

Constraints

Input Set 1: numberOfTestCases \leq 15, $n \leq$ 40, $m \leq$ 400, $q \leq$ 10

Input Set 2: numberOfTestCases \leq 20, $n \leq$ 150, $m \leq$ 3000, $q \leq$ 30

Edge weights are less than or equal to 10^6