

# Gotham rises

Difficulty

1 sec

Time Limit

256000KB

Memory

100

Score

80/80 XP

30/30

## Description

Gotham is in ruins. After the destruction caused by the Joker's latest rampage, the city is in chaos. Bruce Wayne has returned as Batman and has neutralised most of the Joker's associates. However, the city needs to be rebuilt and most of the people need urgent medical attention. City's prominent Gotham General hospital has already been blown up by the Joker. Hence instead of building one large hospital which may easily become the next target for the Joker, Batman asks the mayor to build small clinics throughout the city.

The city consists of  $N$  blocks. The mayor also has to ensure that every block has access to at least one clinic. The connectivity is established by repairing the existing roads.

The cost to build a new clinic is  $C$  and to repair a road is  $r$ .

Since you are working for the Mayor and want to help the Batman, your job is to find the minimum cost such that for every block in the city.

- Either there is a clinic in the block
- Or the block has a path via repaired roads to a block with a clinic.

## Input Format

First-line comprises  $T$  – the number of test cases.

For each test case, the first line comprises four space-separated integers  $N$   $R$   $c$   $r$  – number of blocks, number of roads, the cost for building a clinic, the cost for repairing a road.

Next  $R$  lines comprise 2 space-separated integers  $x$ ,  $y$  – denoting road connection(undirected) between block  $x$  and block  $y$ .

## Output Format

Output the minimum cost for each test case on a new line.

C++14

00:00:00

12 px

```
39         parent[i]=1;
40         num_nodes[i]=1;
41     }
42     vector<pair<int,pair<int,int>>>edges;
43     for(int i=0;i<v;i++){
44         int a,b;
45         cin>>a>>b;
46         edges.push_back({r_cost,{a,b}});
47     }
48     for(int i=1;i<=n;i++){
49         edges.push_back(make_pair(b_cost,make_pair(i,n
50         +1)));
51     }
52     sort(edges.begin(),edges.end());
53     lli ans=0;
54     for(auto v:edges){
55         int wt=v.first;
56         int a=v.second.first;
57         int b=v.second.second;
58         if(rep(a)!=rep(b)){
59             merge(a,b);
60             ans+=wt;
61         }
```

Sample Tests

Manual Tests

Test Case 1 ✓

✓ ACCEPTED

Input

1  
5 4 3 2  
1 2

Console

Run on Sample