Once again, people of Gigaland are unhappy because of political unrest between Broken Arrow and Shadow Coder. This time Broken Arrow wants to be in one step ahead of Shadow Coder in terms of war strategy. He wants to send his army to the battlefield from Megaland as soon as possible.

For strategic reason, Broken Arrow wants to send at least K unit of army to the battlefield. The country of Gigaland consist of N cities (including Megaland and the battlefield) numbered from 1 to N and M unidirectional road. If Broken Arrow wants to send an army troop from city U_i to V_i using road i, the army troop will need D_i days to reach city V_i starting from U_i and at most W_i armies can start their journey on each day from city U_i to go through the road i.

As a great programmer of Gigaland, it is your duty to help Broken Arrow to find the minimum number of days required to send at least K armies from Megaland (city 1) to the battlefield (city N).

Input

Input starts with an integer, T ($T \leq 15$) denoting the number of test cases. Each test case starts with three integers, N ($2 \leq N \leq 50$), M ($1 \leq M \leq N * N$) and K ($1 \leq K \leq 100000$). Each of the next M lines contain four integers U_i, V_i, D_i and W_i ($1 \leq U_i, V_i \leq N$, $U_i \neq V_i$, $1 \leq D_i, W_i \leq 100000$), description of road i. There will always be a path from Megaland to the battlefield and also there can be multiple paths.

Output

For each test case, print the test case number, starting from 1, and the minimum possible days required to send at least K armies from city 1 to city N. If the answer is more than 100 then print '`-1`'.

Sample Input

```
2
3 3 4
1 2 1 5
2 3 2 6
1 3 5 10
3 3 9
1 2 1 5
2 3 2 6
1 3 5 10
```

Sample Output

```
Case 1: 3
Case 2: 4
```