Problem K
Kingdom Profit Kerfuffle

There is a kingdom with n cities and m one-way roads connecting these cities, where cities are numbered from 1 to n and roads are numbered from 1 to m. The i-th road is from the u_i-th city to the v_i-th city. **There can be multiple roads connecting the same pair of cities, but no road connects a city to itself.** In this kingdom, there are two pivotal cities: the capital is the first city, and the central city is the n-th city. It is known that there is at least one path from the capital to the central city.

The king wishes to tax the citizens as much as possible, so he begins to construct toll booths on each road. It is known that each toll booth constructed on the i-th road yields a profit of a_i dollars for the king. Importantly, there can be more than one toll booths on a road.

Understandably, this causes discontent among the citizens, prompting them to protest against this indiscriminate toll booth construction. To pacify the populace, the king decided to build amusement parks. Constructing an amusement park on the i-th road costs the king b_i dollars. Similar to toll booths, multiple amusement parks can be built on a road.

To ensure the citizens do not protest further, the king will build toll booths and amusement parks such that for every path from the capital to the central city, the difference between the number of toll booths and amusement parks does not exceed a certain value. Specifically, for a path from the capital to the central city that goes through roads with indices $r_1, r_2, \ldots, r_k$ in that order, the following condition must be satisfied:

$$\sum_{j=1}^{k} \mathtt{B}_{r_j} - \sum_{j=1}^{k} \mathtt{P}_{r_j} \leq c$$

where

- $\mathtt{B}_{r_j}$ is the number of toll booths the king will construct on the r_j-th road.
- $\mathtt{P}_{r_j}$ is the number of amusement parks the king will build on the r_j-th road.
- c represents the tolerance level of the citizens as surveyed by the king.

In other words, for all paths from the capital to the central city, the king wants to ensure that the number of toll booths does not exceed the number of amusement parks by more than c units. Please note that we count all paths, including paths which pass through the same city or road multiple times. In this case, the elements of the sequence $r_1, r_2, \ldots, r_k$ in the above expression may not be distinct.

Naturally, the king still wants to maximize his profits. Given the kingdom's map, the citizens' tolerance level c, and the list of construction costs as well as profits for building structures in the kingdom, help the king calculate the maximum possible profit when optimally constructing these facilities, or indicate that there exists a construction plan that allows the king to earn more than 10^{18} dollars.

As a reminder, a path from the capital to the central city can be represented as a sequence of road indices $r_1, r_2, \ldots, r_k$ where:

- $u_{r_1} = 1$.
- $v_{r_j} = u_{r_{j+1}}$ for all $1 \leq j < k$.
- $v_{r_k} = n$.

Input

The first line of the input contains a single integer t $(1 \leq t \leq 20\,000)$ – the number of test cases. t test cases follow, each is presented as below:

- The first line contains three integers n, m, and c ($2 \leq n \leq 1000$, $1 \leq m \leq 1000$, $1 \leq c \leq 10^6$) representing the number of cities and roads in the kingdom, and the citizens' tolerance level, respectively.
- In the next m lines, the i-th one contains four integers u_i, v_i, a_i, and b_i ($1 \leq u_i, v_i \leq n$, $u_i \neq v_i$, $0 \leq a_i, b_i \leq 10^6$) describing the i-th road, which is from the u_i-th city to the v_i-th city. It also indicates the profit earned when constructing a toll booth on the road as a_i and the cost of building an amusement park on the road as b_i. It is guaranteed that there is at least one path going from the capital to the central city.

It is guaranteed that:

- The sum of n^2 over all test cases does not exceed 10^6.
- The sum of m^2 over all test cases does not exceed 10^6.

Output

For each test case:

- Print -1 if there exists a construction plan that allows the king to earn more than 10^{18} dollars.
- Otherwise, print an integer representing the maximum profit the king can earn by optimally constructing facilities.

Sample Explanation

For the first test case, we can build 2 toll booths on the first road, granting the king 6 profit.

For the second test case, note that building only 1 toll booth on the first road will anger the population as the path $1, 3, 1, 3, 1, 3, 1$ sees 4 toll booths but no amusement parks. It turns out that the king cannot profit at all in this case.

For the fourth test case, we can put 10^{18} toll booths on the fourth road as it is not a part of any paths from the capital to the central city. It is clearly that the king can earn more than 10^{18} dollars in this case.

Sample Input 1	Sample Output 1
4 2 1 2 1 2 3 8 2 4 3 1 2 6 10 1 2 1 3 2 1 2 7 2 1 0 3 6 8 1 3 6 4 8 1 5 0 6 1 3 0 3 5 4 1 3 6 3 5 10 5 4 5 7 5 6 3 10 4 5 5 8 4 4 5 1 2 4 5 1 2 3 1 2 4 3 3 3 1 9 6	6 0 3 -1