

Restoring Weights

Input file:	<code>standard input</code>
Output file:	<code>standard output</code>
Time limit:	3 seconds
Memory limit:	512 megabytes

In the village of graphs, there lived two researchers, Lena and Misha. They found a connected undirected graph consisting of n vertices and m edges.

Some edges had known positive weights, while others had unknown weights. Lena and Misha decided to determine how many ways there are to assign integer values from 1 to l inclusive to the edges with unknown weights so that, for each vertex v , the shortest path from vertex 1 to vertex v has length exactly d_v .

Since the number of possible assignments can be very large, the answer should be given modulo $10^9 + 7$.

Input

Each test contains one or more test cases. The first line contains a single integer t ($1 \leq t \leq 50$) — the number of test cases.

The descriptions of the test cases follow.

The first line of each test case contains three integers n , m , and l ($2 \leq n \leq 50$; $n - 1 \leq m \leq \frac{n(n-1)}{2}$; $1 \leq l \leq 10^9$) — the number of vertices, the number of edges, and the maximum possible weight of an unknown edge.

The next m lines describe the edges of the graph. Each edge is given by three integers u_i , v_i , w_i ($1 \leq u_i, v_i \leq n$; $u_i \neq v_i$; $-1 \leq w_i \leq l$; $w_i \neq 0$) — the endpoints of the edge and its weight. If $w_i = -1$, the weight of this edge is unknown and can be chosen from 1 to l . If $w_i \neq -1$, this is the known weight of the edge.

The last line of each test case contains n integers d_1, d_2, \dots, d_n ($0 \leq d_v \leq 10^{12}$), where d_v is the required length of the shortest path from vertex 1 to vertex v .

It is guaranteed that the graph is connected and contains no loops or multiple edges.

Output

For each test case, output a single integer — the number of ways to assign weights to the edges with unknown weights from 1 to l such that, for every vertex v , the sum of the edge weights on the shortest path from vertex 1 to vertex v equals d_v , taken modulo $10^9 + 7$.

Example

standard input	standard output
4	3
3 3 3	1
1 2 -1	4
2 3 -1	0
1 3 -1	
0 1 1	
3 2 3	
1 2 -1	
2 3 -1	
0 1 2	
3 3 3	
1 2 -1	
2 3 -1	
1 3 -1	
0 1 2	
3 3 3	
1 2 1	
2 3 1	
1 3 1	
0 1 2	