

E. Levko and Game

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Levko loves sports pathfinding competitions in his city very much. In order to boost his performance, Levko spends his spare time practicing. The practice is a game.

The city consists of n intersections connected by $m + k$ directed roads. Two or more roads can connect the same pair of intersections. Besides, there can be roads leading from an intersection to itself.

Levko and Zenyk are playing a game. First Levko stands on intersection s_1 , and Zenyk stands on intersection s_2 . They both want to get to intersection f . The person who does it quicker wins. If they get there at the same time, the game ends with a draw. By agreement both players start simultaneously and move with the same speed.

Levko wants to win very much. He knows the lengths of all the roads in the city. Also he knows that he can change the lengths of some roads (there are k such roads at all) if he pays the government. So, the government can change the length of the i -th road to any integer value in the segment $[l_i, r_i]$ (both borders inclusive). Levko wondered if he can reconstruct the roads so as to win the game and whether he can hope for the draw if he cannot win.

You should consider that both players play optimally well. It is guaranteed that we can get from intersections s_1 and s_2 to intersection f .

Input

The first line contains three integers n , m and k ($1 \leq n, m \leq 10^4$, $1 \leq k \leq 100$). The second line contains three integers s_1 , s_2 and f ($1 \leq s_1, s_2, f \leq n$).

The next m lines contains the descriptions of the roads that cannot be changed by Levko. Each line contains three integers a_i , b_i and c_i ($1 \leq a_i, b_i \leq n$, $1 \leq c_i \leq 10^9$), representing a road from intersection a_i to intersection b_i of length c_i .

The next k lines contains the descriptions of the roads that can be changed by Levko. Each line contains four integers a_i , b_i , l_i and r_i ($1 \leq a_i, b_i \leq n$, $1 \leq l_i \leq r_i \leq 10^9$), representing a road from intersection a_i to intersection b_i , Levko can set the road's length within limits $[l_i, r_i]$.

Consider all intersections numbered from 1 to n . It is guaranteed that you can get from intersections s_1 and s_2 to intersection f .

Output

In the first line print string "WIN" (without the quotes) if Levko can win this game, string "DRAW" (without the quotes) if Levko can end the game with a draw and "LOSE" (without the quotes) if he loses for sure.

If the answer is "WIN" or "DRAW", then print on the second line k space-separated integers — the length of the roads Levko sets in the order they occur in the input.

Examples

input
4 1 3 1 3 4 3 2 2 1 2 1 3 2 4 1 3 3 4 1 3
output

WIN
1 1 3

input
4 1 3 1 3 4 3 2 2 1 2 1 3 2 4 1 3 3 4 1 2
output
DRAW 1 1 2

input
5 4 2 1 2 5 1 3 3 1 4 4 2 3 2 2 4 3 3 5 1 5 4 5 4 7
output
LOSE