Doomsday

Problem ID: doomsday

Doomsday is near! Or at least that's what your brother is telling you. In his preparations he has constructed a clever network of well concealed food depots and water depots far out in a mountainous region. You are in your base, and the alarm goes off: how quickly can you fetch both food and water supplies?

Public domain, Munds Mountain Trail by Coconino NF Photography via Flickr

Input

The first line contains four integers n, m, w, f, where $1 \leq n \leq 50\,000$ is the number of hidden locations, $0 \leq m \leq 150\,000$ is the number of trails in the network, $1 \leq w \leq n$ is the number of water depots in total, and $1 \leq f \leq n$ is the number of food depots in total. Your base is at location 0. The second line contains w space-separated integers $u_1, u_2, \ldots, u_w$, which represents the (distinct) locations of the water depots ($0 \leq u_i < n$ for each i). The third line contains f space-separated integers $v_1, v_2, \ldots, v_f$, which represents the (distinct) locations of the food depots ($0 \leq v_i < n$ for each i).

The next m lines each describe a (bidirectional) trail in the network. The i^{th} such line contains three space-separated integers a_i, b_i and t_i indicating that there is a trail between location a_i and b_i which takes t_i hours to traverse ($0 \leq a_i, b_i < n$ and $0 \leq t_i < 100$ for each i).

Output

Output a single integer, the minimum number of hours required to fetch both food and water and bring it back to base.

Sample Input 1	Sample Output 1
7 7 2 2 3 6 4 5 0 1 3 0 2 1 1 3 3 1 4 1 2 5 2 2 6 10 4 5 1	14