

## Problem K. Kindle the Bonfire

Input file: `stdin`  
Output file: `stdout`  
Time limit: 1 second

Being the last guardian of the lost land of Dregoeheap, you are in charge of protecting the inhabitants in this area.

The land of Gregoeheap consists of  $N$  cities and  $M$  roads, where each road is bidirectional and connects exactly 2 cities. During the day, you will patrol around Dregoeheap. When you are at some city  $i$ , you may receive a distress call from some other city  $j$  about an emergency event. Of course, as the sole guardian, you need to go to city  $j$  as soon as possible and save the citizens there.



Luckily, at Gregoeheap, there are  $K$  cities which contain an unkindled bonfire. Once a bonfire is kindled, you can teleport from that bonfire to any other *kindled* bonfire. However, due to limited resources, you are only able to kindle at most  $L$  bonfires.

After kindling bonfires in the optimal way, you would like to know in the worst case, what is the longest distance you need to travel in order to respond to one emergency event.

Note your patrol route is random, and the emergency events also happen randomly. You can assume traveling within a city is cost-free. Also teleporting between bonfires is also costfree. You will also only receive distress call when you are in a city, and no two emergencies events will happen at the same time.

At last, it is guaranteed there is always a path between any pair of cities.

### Input

The first line of input contains two integers  $N, M$  ( $1 \leq N \leq 20, 0 \leq M \leq 500$ ).

In the next  $M$  lines, each line will contain three integers,  $u_i, v_i, w_i$ ,  $1 \leq u_i, v_i \leq N$ ,  $1 \leq w_i \leq 10^6$ , which means this road connects cities  $u_i, v_i$  and has length  $w_i$ .

The next line contains two integers  $K, L$  ( $0 \leq L \leq K \leq 10$ ).

The final line of input contains  $K$  integers, denoting the indices of cities which contain an unkindled bonfire.

### Output

A single line with an integer giving the longest distance you need to travel in case of emergency.

### Examples

stdin	stdout
3 3 1 2 1024 1 3 1024 2 3 1024 3 3 1 3 2	0
3 2 1 2 5 1 3 1024 3 2 1 3 2	5