D. General SAT

time limit per test: 6 s.
memory limit per test: 1024 MB

You are given a connected, undirected simple graph of n vertices and m edges, and the vertices are numbered from 1 to n. The i-th edge connects vertex u_i and v_i and has a weight w_i.

For a given positive integer x, let $f(x)$ represent the minimum number of colors needed to color the vertices of the graph such that for every pair of distinct vertices u and v, at least one of the following condition holds:

- Vertex u and v are in different colors.
- There does not exist a simple path (a path without duplicate vertices and edges) from u to v such that the maximum edge along the path is lower or equal to x.

You are given q queries, each of which provides an integer k_i. Your task is to output the value of $f(k_i)$ for each query.

Input

The first line contains three integers n, m, and q ($2 \le n \le 3 \times 10^5$, $n - 1 \le m \le \min\left(\frac{n(n-1)}{2}, 3 \times 10^5\right)$, $1 \le q \le 3 \times 10^5$) — the number of vertices, edges, and queries, respectively.

Then follow m lines, each containing three integers u_i, v_i, and w_i ($1 \le u_i, v_i \le n$, $1 \le w_i \le 10^9$) — there is an edge of weight w_i between vertices u_i and v_i.

Then follow q lines, each containing one integer k_i ($1 \le k_i \le 10^9$) — the query parameter.

It is guaranteed that the graph is simple and connected.

Output

For each query, print $f(k_i)$ in one line.

Examples

input Copy

```
5 6 6
1 5 3
2 5 14
1 2 12
2 4 7
4 3 10
2 3 9
3
9
12
15
1
8
```

output Copy

```
2
3
5
5
1
2
```

input Copy

```
2 1 5
1 2 100
98
99
100
101
102
```


output

Copy

```
1
1
2
2
2
```