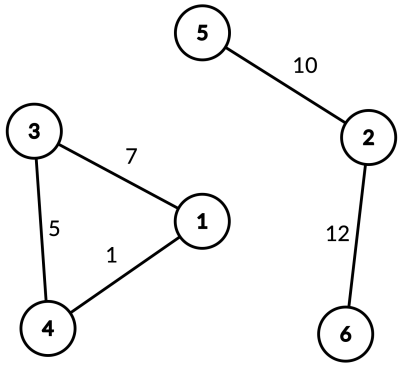
Knowledge Testing Problem

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

Every respectable contest must have a textbook graph problem. No convoluted processes, no weird observations; just pure, raw algorithmics. Lucky for you, you've just found it!



The picture above depicts the example test case.

You are given an undirected, weighted graph with n vertices and m edges, as well as q queries of form (a_i, b_i). For each of the queries, find the length of the shortest path between vertices a_i and b_i.

Input

The input consists of $m + q + 1$ lines. The first line of the input will contain three integers n, m, and q ($1 \leq n \leq 100\,000$, $1 \leq m \leq 200\,000$, $1 \leq q \leq 25\,000$). Each of the next m lines contain three integers u_i, v_i, and w_i, denoting undirected edge between vertices u_i and v_i of length w_i ($1 \leq u_i, v_i \leq n, 1 \leq w_i \leq 10^9$). Finally, each of the last q lines contain two integers a_i, b_i ($1 \leq a_i, b_i \leq n$).

There is at most one edge between any pair of vertices, and no edges that connect a vertex with itself.

Moreover, it is guaranteed that all m edges u_i, v_i satisfy $|u_i - v_i| \leq 10$.

Output

Output q lines. The i-th line should contain a single positive integer, representing the minimum length of a path that connects the vertices in the i-th query. If there is no such path, output -1 for that specific query.

Example

standard input	standard output
6 5 3 1 3 7 3 4 5 1 4 1 2 5 10 2 6 12 6 5 1 3 1 5	22 6 -1