Shortest Routes

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	256 megabytes

There are n cities and m roads between them. Your task is to process q queries where you have to determine the length of the shortest route between two given cities.

Input

The first input line has three integers n, m and q: the number of cities, roads, and queries ($1 \le n \le 500$, $1 \le m \le n^2$, $1 \le q \le 10^5$).

Then, there are m lines describing the roads. Each line has three integers a, b and c: there is a road between cities a and b whose length is c ($1 \le a, b \le n$, $1 \le c \le 10^9$). All roads are two-way roads.

Finally, there are q lines describing the queries. Each line has two integers a and b: determine the length of the shortest route between cities a and b ($1 \le a, b \le n$).

Output

Print the length of the shortest route for each query. If there is no route, print -1 instead.

Example

standard input	standard output
4 3 5 1 2 5 1 3 9 2 3 3 1 2 2 1 1 3 1 4 3 2	5 5 8 -1 3