3 Petrol tank

You have to drive your truck across a desolate part of the country where towns are few and far between. There are no petrol pumps along the highways in this region, but each town has a pump where you can fill up your petrol tank.

For each pair of adjacent towns, you know the amount of petrol you need to go from one town to the other. Given a starting point s and a destination d, you would like to compute the minimum capacity petrol tank that you need in order to travel from s to d without running out of petrol along the way.

Input format

- The first line consists of two space separated integers, N and M, where N is the number of cities and M is the number of direct roads between cities. The cities are numbered $1..N$.
- The next M lines describe the roads. Each line consists of three space separated integers u, v and w where u and v are the two endpoints of the road and w is the amount of petrol required to cover this stretch of road.
- The next line is an integer Q, the number of queries you have to answer.
- The next Q lines are the queries. Each line consists of two space separated integers s and d, where s is the source town and d is the destination.

Output format

Your output should consist of Q lines. Line i should be a single integer, the answer to query i.

Test Data

In all testcases, $1 \leq w \leq 10^7$.

- Subtask 1 (35 marks) : $1 \leq N \leq 1000$, $1 \leq M \leq 2000$, $1 \leq Q \leq 1000$
- Subtask 2 (65 marks) : $1 \leq N \leq 10^5$, $1 \leq M \leq 2 \times 10^5$, $1 \leq Q \leq 10^5$

Sample Input

```
4 5
1 2 1
1 3 4
2 3 2
2 4 5
3 4 4
2
1 3
4 2
```

Sample Output

```
2
4
```

Limits

- *Time limit:* 5 s
- *Memory limit:* 128 MB