

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

D. Cycle Free Flow

time limit per test: 4 seconds
memory limit per test: 256 megabytes

You are given an undirected connected weighted graph of n nodes which contains no cycles. For q different pairs of nodes, we would like you to find the maximum flow from the first node in the pair to the second node in the pair. See the definition for max flow below if you don't know what it means.

Also, **please answer these queries online**. Originally, I was going to force you to do this by encrypting stuff, but that would make this problem harder to read and more annoying. So, on your honor, please answer the first query before reading the second query, et cetera. After all, this is just practice for you to get better, right?

The maximum flow in a graph between two nodes a and b can be defined as follows: You may pick any path from a to b such that every edge on that path has a positive weight. Then you may subtract 1 from the weight of every edge on that path, and add 1 to your answer. Keep doing this as many times as you would like. The "maximum flow" between the two nodes is the greatest that your answer could possibly be, if you choose your paths optimally at every step.

Input

The first line will contain a two integers: n and m , the number of nodes and the number of edges in the graph. The next m lines will each contain three integers: the endpoints u and v of an undirected edge, and the initial weight of that edge w .

The next line will contain a single integer q : the number of queries you must answer.

Each of the next q lines will contain two integers: a and b , the two nodes you should find the max flow between.

$$2 \leq n, m, \leq 3 * 10^5$$

$$1 \leq a, b, \leq n \ a \neq b$$

$$1 \leq w \leq 10^9$$

$$u \neq v$$

Additional constraint on input: the given graph is connected and has no cycles, self-loops, or multi-edges.

Output

For each query, please print a single integer: the max flow between nodes a and nodes b for that query.

Examples

input	Copy
<pre>2 1 1 2 2768 2 1 2 2 1</pre>	
output	Copy
<pre>2768 2768</pre>	

input	Copy
<pre>3 2 3 2 4814 2 1 1832 3 2 1 1 2 3 1</pre>	
output	Copy
<pre>1832 1832 1832</pre>	

input	Copy
<pre>5 4 4 2 10348 1 4 2690 5 4 9807 3 4 8008 5 5 4 1 5 5 4 5 4 1 5</pre>	
output	Copy
<pre>9807 2690 9807 9807 2690</pre>	

AlgorithmsThread Tree Basics Contest

Finished

Practice



→ About Contest



AlgorithmsThread Tree Basics contest.
Problems written by David Harmeyer (SecondThread), with some data/ideas from Travis Meade.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
320691632	May/21/2025 22:06	Accepted
317783416	Apr/30/2025 00:07	Accepted
317782738	Apr/29/2025 23:52	Accepted
317782350	Apr/29/2025 23:45	Accepted
317781819	Apr/29/2025 23:35	Wrong answer on test 8
317781695	Apr/29/2025 23:33	Memory limit exceeded on test 7
317781557	Apr/29/2025 23:31	Memory limit exceeded on test 7
317779856	Apr/29/2025 23:00	Wrong answer on test 4
317684440	Apr/29/2025 04:01	Accepted

→ Contest materials

- Announcement (en)

input	Copy
5 4 1 3 2653 4 1 322 5 1 8657 2 4 4896 5 4 2 2 5 2 5 1 3 4 5	
output	Copy
4896 322 322 2653 322	

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