

Speed Limit!

Time Limit: 1 Second
Memory Limit: 2048 MB

LetianPie loves traveling so he drives his car to explore new cities every weekend. As he spent a lot of time driving, he discovered an annoying fact about the interstates – the speed limit changes frequently. To avoid getting into trouble by over-speeding, he has to slow down his speed whenever the speed limit decreases, which increases his fuel consumption. To count the number of times he needs to change his speed, he asks you for help. Specifically, there will be three types of events:

- $+ \ l \ r \ k$: the speed limit between exits l and r (inclusive) is updated to k mph. **The values of k among all events are distinct.**
- $? \ l \ r$: LetianPie asks you the number of times he would need to change his speed if he enters the interstate at exit l and leaves at exit r .

Assume that LetianPie will drive exactly at the speed limit (so he will increase his speed if the speed limit increases), and the initial speed limit for the interstate is ∞ anywhere.

Input

The first line of input contains two integers n and q ($2 \leq n \leq 10^9$, $1 \leq q \leq 10^5$) - the number of exits on the interstate and the number of events.

The next q lines describe the events. Each line starts with either $+$, or $?$. If the symbol is $+$, it will be followed by three integers l , r , and k ($1 \leq l < r \leq n$, $1 \leq k \leq 10^9$). Otherwise the symbol will be followed by two integers l and r ($1 \leq l < r \leq n$).

Output

For each query, output a single integer denoting the number of times LetianPie will need to adjust his speed.

Sample Inputs

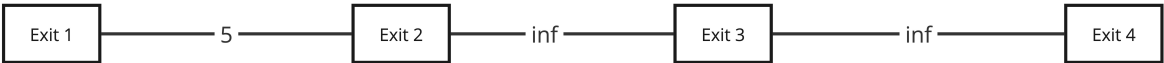
```
4 4
+ 1 2 5
? 2 3
+ 2 3 6
? 1 4
```

Sample Outputs

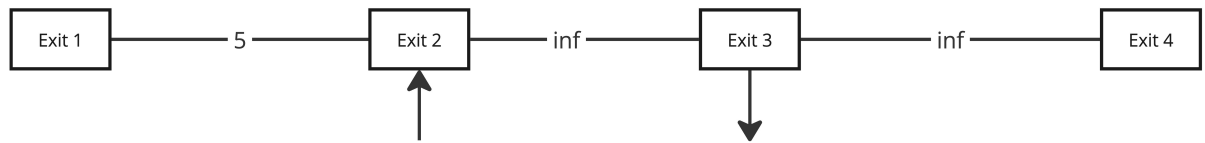
```
0
2
```

Note

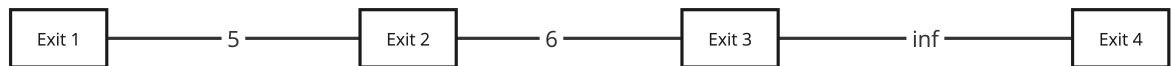
- The first event updates the speed limit between exit 1 and 2 to 5 mph.



- In the second event, LetianPie enters at exit 2 and leaves at exit 3, and the speed limit is ∞ all over the trip.



- The third event updates the speed limit between exit 2 and 3 to 6 mph.



- In the last event, LetianPie enters at exit 1 and leaves at exit 4. His initial speed will be 5 mph, increasing to 6 mph at exit 2, and reaching ∞ mph at exit 3.

