

Range Sets

Input file: *standard input*
Output file: *standard output*
Time limit: 3 seconds
Memory limit: 512 mebibytes

This is an interactive problem.

You have n sets of integers. The sets are numbered from 1 to n . Initially, all sets are empty. Your task is to perform q queries of the following three types.

1. “+ ℓ r x ”. Add x to all sets with numbers from ℓ to r inclusive ($1 \leq \ell \leq r \leq n$).
2. “- ℓ r x ”. Remove x from all sets with numbers from ℓ to r inclusive ($1 \leq \ell \leq r \leq n$).
3. “? k ”. Print the size of set number k ($1 \leq k \leq n$).

The sets behave like regular sets: if we add an element that is already present, or remove an element that is already missing, nothing happens.

Input

The first line contains two integers n and q : the numbers of sets and queries correspondingly ($1 \leq n \leq 10^9$; $0 \leq q \leq 10^5$). The next q lines contain queries in the format described above ($1 \leq x \leq q$ in the queries).

Output

For each query of the third type, your program should print the answer on a separate line. It is guaranteed that there are at most 10 000 such queries. After outputting each answer, don't forget to print the newline character and flush the correct output buffer, or the outcome will be “Idleness Limit Exceeded”. To flush the buffer, one can call, for example, `fflush (stdout)` in C or C++, `System.out.flush ()` in Java, `flush (output)` in Pascal or `sys.stdout.flush ()` in Python.

Example

<i>standard input</i>	<i>standard output</i>
736 10	0
? 1	1
+ 1 5 1	2
+ 2 600 2	2
? 1	2
? 2	1
+ 1 6 2	
? 1	
? 2	
- 1 6 2	
? 4	