The Excavators

Similar to imps, gnomes, sprites, and borrowers, the excavators are mischievous little creatures. Excavators have an obtusely irritating habit of compulsive landscaping. There's nothing they love to do more than digging deep holes and building tall hills.

Early one morning, you wake up to a concerning commotion in your garden. You open the curtains, and to your horror spot hundreds - no thousands - of little excavators. Your garden has been overrun! Last night, your garden was a long thin stretch of immaculately flat grass, but now... the excavators have started their work quickly. What was once a carefully manicured lawn is now an undulating pile of muddy soil. You need to stop them - fast.

Excavators take their work (if you can call it that) very seriously. While their horticultural restructuring may look chaotic, it is actually finely choreographed. Each excavator carries out a single excavation, which is simply defined by three integers, colloquially known as **start**, **end**, and **delta**.

Start and **end** give the starting and ending positions (inclusive) of the excavation. Each excavation can be thought of as an arithmetic sequence, and **delta** gives both the starting value and the difference between consecutive terms. A positive term in the sequence means the excavator will add that much soil at that location in the garden, while a negative term means the excavator will remove that much soil.

Looking at each excavator in term, you manage to figure out each of their excavations. Now, you need to determine what they're going to do to your beautiful garden...

INPUT   You will be given 2 integers, **l** (the length of your garden) and **n** (the number of excavations). This will be followed by **n** lines of three integers, **x1 x2**, **d**, denoting the start position, the end position, and the delta of each excavation.

Note that the start and end positions are inclusive. Your garden starts entirely flat (i.e. all zeroes)

$1 \leq$ **l**, **n** $\leq 2^{20}$
$1 \leq$ **x1** $\leq$ **x2** $\leq$ **l**
$-2^{15} \leq$ **d** $\leq 2^{15}$

OUTPUT   Output **l** integers on separate lines, the **i**th of which is the final height of your garden at position **i**, after all of the excavations have finished.

SAMPLE   For example, suppose your garden is 5 units long and the excavators are carrying out 3 different excavations: 3 4 1, 0 3 2, and 2 3 -5. The first excavation turns your garden into 0 0 0 1 2. The second excavation turns your garden into 2 4 6 9 2. Finally, after the third excavation, your garden ends up as 2 4 1 -1 2.

INPUT	OUTPUT
5 5	3
0 4 5	6
0 2 -2	13
3 4 -2	26
2 3 4	22

4 4 1

10 3   0
1 5 6   6
3 4 -3   12
7 9 2   15
                  18
                  30
                  0
                  2
                  4
                  6