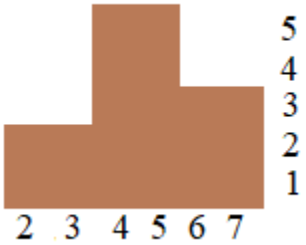
Chocolate Bars

Filename: bars

In the new game Chocolate Building, the game screen has a given width, in chocolate bar units, and an infinite height, because, who doesn't want more chocolate! On a single move, a player chooses a consecutive sequence of columns and adds some fixed number of unit chocolate bars to each of these columns. Naturally, the chocolate drops as far down to the bottom until it rests. For example, if we add 3 units of chocolate to columns 4 through 7 and then add 2 units of chocolate to columns 2 through 5, our building would look like this:



At any time, you are also curious how many unit chocolate bars are within a given consecutive sequence of columns. For example, we may want to know how many unit bars of chocolate there are in between columns 3 and 6, inclusive. For this query, the result is 2 + 5 + 5 + 3 = 15.

The Problem

Write a program that can process a sequence of moves and queries during the chocolate game.

The Input

The first line of input will contain a single positive integer, w ($w \leq 10^5$), representing the width of the playing board. The second line will contain a single positive integer, m ($m \leq 10^5$), representing the total number of moves/queries. The following m lines will contain the moves/queries, one operation per line. Each of these lines will start with a single integer, either 1, representing a move or 2 representing a query. If a move is being described, three more integers will follow: L ($1 \leq L \leq w$), R ($L \leq R \leq w$), and N ($1 \leq N \leq 10^8$), representing that we are adding N unit chocolate bars to each column in between column L and column R, inclusive. If a query is being described, then two more integers will follow: L ($1 \leq L \leq w$) and R ($L \leq R \leq w$), representing that we want to know the total number of unit chocolate bars in between column L and column R, inclusive.

The Output

For each query, output the result on a line by itself.

Sample Input	Sample Output
7 4 1 4 7 3 2 3 5 1 2 5 2 2 3 6	6 15