

## C. DZY Loves Colors

time limit per test 2 seconds

memory limit per test 256 megabytes

input standard input

output standard output

*DZY loves colors, and he enjoys painting.*

On a colorful day, DZY gets a colorful ribbon, which consists of  $n$  units (they are numbered from 1 to  $n$  from left to right). The color of the  $i$ -th unit of the ribbon is  $i$  at first. It is colorful enough, but we still consider that the colorfulness of each unit is 0 at first.

DZY loves painting, we know. He takes up a paintbrush with color  $x$  and uses it to draw a line on the ribbon. In such a case some contiguous units are painted. Imagine that the color of unit  $i$  currently is  $y$ . When it is painted by this paintbrush, the color of the unit becomes  $x$ , and the colorfulness of the unit increases by  $|x - y|$ .

DZY wants to perform  $m$  operations, each operation can be one of the following:

1. Paint all the units with numbers between  $l$  and  $r$  (both inclusive) with color  $x$ .
2. Ask the sum of colorfulness of the units between  $l$  and  $r$  (both inclusive).

Can you help DZY?

### Input

The first line contains two space-separated integers  $n, m$  ( $1 \leq n, m \leq 10^5$ ).

Each of the next  $m$  lines begins with a integer  $type$  ( $1 \leq type \leq 2$ ), which represents the type of this operation.

If  $type = 1$ , there will be 3 more integers  $l, r, x$  ( $1 \leq l \leq r \leq n$ ;  $1 \leq x \leq 10^8$ ) in this line, describing an operation 1.

If  $type = 2$ , there will be 2 more integers  $l, r$  ( $1 \leq l \leq r \leq n$ ) in this line, describing an operation 2.

### Output

For each operation 2, print a line containing the answer — sum of colorfulness.

### Examples

input
3 3 1 1 2 4 1 2 3 5 2 1 3
output
8

**input**

```
3 4
1 1 3 4
2 1 1
2 2 2
2 3 3
```

**output**

```
3
2
1
```

**input**

```
10 6
1 1 5 3
1 2 7 9
1 10 10 11
1 3 8 12
1 1 10 3
2 1 10
```

**output**

```
129
```

**Note**

In the first sample, the color of each unit is initially  $[1, 2, 3]$ , and the colorfulness is  $[0, 0, 0]$ .

After the first operation, colors become  $[4, 4, 3]$ , colorfulness become  $[3, 2, 0]$ .

After the second operation, colors become  $[4, 5, 5]$ , colorfulness become  $[3, 3, 2]$ .

So the answer to the only operation of type 2 is 8.