

4587 U Fill Me Up

An $n \times m$ matrix can be filled by **consecutive numbers** starting from a number p , in a **diagonal** fashion starting at the **upper right corner**. For example, the 4×7 matrix below is filled up by numbers starting from 4.

	1	2	3	4	5	6	7
1	22	21	14	13	7	6	4
2	28	23	20	15	12	8	5
3	29	27	24	19	16	11	9
4	31	30	26	25	18	17	10

From the matrix, the **sum** of the elements covered by the region specified by indices (x_1, y_1) and (x_2, y_2) can be computed. For example, the sum of the elements covered by the region specified by index (1, 2) to index (2, 4) is 106 (because $21 + 14 + 13 + 23 + 20 + 15 = 106$).

Input

The file consists of several test cases, each with a case number and the test case. A test case specifies the dimensions n and m of the matrix (where $0 < n, m < 31$), followed by the starting number p (where $0 < p < 101$), and then followed by the indices (x_1, y_1) and (x_2, y_2) of the region to total (where x_1, y_1, x_2, y_2 are > 0 , and $x_1 \leq x_2$ and $y_1 \leq y_2$).

Output

For each test case, output the **sum** of the elements in the specified region.

Sample Input

```
Case 1: 4 7 4 1 2 2 4
Case 2: 4 7 4 3 6 4 7
Case 3: 4 7 4 5 2 6 8
Case 4: 4 7 4 4 7 5 10
Case 5: 8 5 1 2 1 2 5
```

Sample Output

```
Case 1: 106
Case 2: 47
Case 3: 0
Case 4: 10
Case 5: 48
```