Problem G: Ribbon

Time limit: 1s; Memory limit: 256 MB

Jeremy has a long ribbon with N equal pieces. Each piece has an integer number, we can describe it by an array A of integers with length N. Jeremy want to split the ribbon into multiple segments with length equals to K (we can abort some pieces). Each segment has its own beautiful level B which equals the sum of all numbers inside.

For example: A = [-3, 1, -2, 6, 2, 3] and K = 2. Jeremy can split the ribbon into [[-3, 1], [6, 2]] or [[-2, 6], [2, 3]] or [[-3, 1], [-2, 6], [2, 3]] ... not into [[-3,1,-2],[2,3]] and [[-3,-2],[6,2]]…

After that, he sticks the above segments together (keep the ordinary) and colors them with black or white to create a ribbon of alternating colors (they should be compiled with one of these forms black-white-black-white-… or white-back-white-black-...).

When Jeremy split the original ribbon to Q parts. Each part has a beautiful level B_j ($1 \le j \le Q$) and a color attribute M_j (the explanation below). The value L of the ribbon is described by following formula:

$$L = \sum_{j=1}^{N} M_j \times B_j$$

where, L is the value of the ribbon; B_i is the beautiful level of the i-th segment; and M_i equals to 1 (white segment) or -1 (black segment).

Determine the maximum value L of the ribbon.

Input

The first line of the input contains an integer T ($1 \le T \le 10$) - the number of test cases in the input. The descriptions of the test cases follow.

The first line of description of each test case contains two integers N and K ($1 \le K \le N \le 2 \times 10^5$) - the length of ribbon and segment.

The second line of the description of each test case contains N integers A_i - numbers on the ribbon ($-10^9 \le A_i \le 10^9$).

Output

Output *T* numbers, each of which is the answer to the corresponding test case.

Sample

Input	Output
3 3 3 -2 -3 2 5 2 6 5 2 -5 -6 6 2 -3 1 -2 6 2 3	3 22 10

Explanation:

In the first test case, we can choose all elements of the array and color the second segment by black.

In the third test case, Jeremy can split it and get 2 segments [-3,1] and [6,2] (abort two pieces with value 2 and 3). Then he colors the first segment with black, second one with white. The answer is $-1 \times (-3 + 1) + 1 \times (2+6) = 10$.