

The Last of Us

Input file: **standard input**
Output file: **standard output**
Time limit: 0.25 seconds
Memory limit: 4 megabytes

Given an integer array a of length n and a number k , you can perform the following operation **any** number of times:

- Choose an index $1 \leq i \leq n$ and remove elements $a_{\max(1, i-k)}, \dots, a_i, \dots, a_{\min(n, i+k)}$ from the array. The cost of such operation is the value a_i .

If the array becomes partitioned after the operation, the resulting segments can be concatenated at no cost (i.e., a becomes $a_1, \dots, a_{i-k-1}, a_{i+k+1}, \dots, a_n$).

Determine the minimum cost to make the array empty.

Input

The first line of the input contains a single integer, t ($1 \leq t \leq 1000$) — the number of test cases.

The first line of each test case contains two integers, n and k ($1 \leq n \leq 200$, $0 \leq k < n$) — the length of the array and the number k .

The second line of each test case contains n integers, a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$) — the elements of the array.

It is guaranteed that the sum of n^3 over all test cases does not exceed $8 \cdot 10^6$.

Output

For each test case, output a single integer — the minimum cost to make the array empty.

Example

standard input	standard output
7	2
3 1	1
1 2 3	4
3 2	5
1 2 3	3
6 1	2
2 3 2 1 2 3	2
9 1	
1 2 3 2 1 2 3 2 1	
9 2	
1 2 3 2 1 2 3 2 1	
8 2	
2 3 2 1 2 3 2 1	
5 1	
1 1 1 10 100	

Note

In the first test case, all elements can be removed in a single operation with cost a_2 .

In the second test case, all elements can be removed in a single operation with cost a_1 .

In the fourth test case, three operations can be performed, with a minimum total cost of $a_2 + a_5 + a_8$.