K-Concatenation

Problem Code: **KCON**

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You are given an array **A** with size **N** (indexed from 0) and an integer **K**. Let's define another array **B** with size **N** · **K** as the array that's formed by concatenating **K** copies of array **A**.

For example, if **A** = {1, 2} and **K** = 3, then **B** = {1, 2, 1, 2, 1, 2}.

You have to find the maximum subarray sum of the array **B**. Fomally, you should compute the maximum value of $B_i + B_{i+1} + B_{i+2} + ... + B_j$, where $0 \le i \le j < N \cdot K$.

Input

- The first line of the input contains a single integer **T** denoting the number of test cases. The description of **T** test cases follows.
- The first line of each test case contains two space-separated integers **N** and **K**.
- The second line contains **N** space-separated integers $A_0, A_1, ..., A_{N-1}$.

Output

For each test case, print a single line containing the maximum subarray sum of **B**.

Constraints

- $1 \le T \le 10$
- $1 \le N \le 10^5$
- $1 \le K \le 10^5$
- $-10^6 \le A_i \le 10^6$ for each valid **i**

Subtasks

Subtask #1 (18 points): $N \cdot K \le 10^5$

Subtask #2 (82 points): original constraints

Example

```
Input:

2
2 3
1 2
3 2
1 -2 1

Output:

9
2
```

Explanation

Example case 1: B = {1, 2, 1, 2, 1, 2} and the subarray with maximum sum is the whole {1, 2, 1, 2, 1, 2}. Hence, the answer is 9.

Example case 2: B = {1, -2, 1, 1, -2, 1} and the subarray with maximum sum is {1, 1}. Hence, the answer is 2.

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Time Limit: 1 secs

Source Limit: 50000 Bytes

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