K-Concatenation | Problem Code: **KCON**

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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Date Added:	28-12-2017
Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	ADA, ASM, BASH, BF, C, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 6.3, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, kotlin, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYPY, PYTH, PYTH 3.5, RUBY, rust, SCALA, SCM chicken, SCM guile, SCM qobi, ST, swift, TCL, TEXT, WSPC