Subarray K-sums

Problem code: BYCO17A

Problem description.

You are given an array **A** consisting of **N** integers. We are conducting research on the array and need a script that finds **K-sums** of different parts of the array. You are given the responsibility of creating this script! Formally, a **K-sum** for inputs **l,r,k** is defined as the sum of **k** largest elements in the subarray **A[l,r]** . It is guaranteed that **k <= r-l+1**.

Input

Input description.

First line of input contains **N**, the size of array **A** ,**Q**, the number of K-sum queries to be solved and **K** to be used for each query. Second line contains **N** space-separated integers $A_1,A_2,...,A_N$ **Q** lines follow, each containing 2 integers l,r as defined in the problem statement

Output

Output consists of **Q** lines, **i-th** line containing the answer to **i-th** query

Constraints

- **1 ≤ N ≤ 50000**
- **1 ≤ L ≤ R <= N**
- **1 ≤ k ≤ N**
- **1 ≤ Q ≤ 10000**

Example

Input:
8 4 4
1 2 3 4 5 6 7 8
4 8
3 8
3 7
1 6

Output:
26
26
22
18

Explanation

Example case 1. Find **k** largest elements in each interval and find their sum

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Time Limit:	4 sec
Source Limit:	50000 Bytes
Languages:	ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.9.2, CPP14, CS2, D, ERL, FORT, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYPY, PYTH, PYTH 3.4, RUBY, SCALA, SCM chicken, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

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