
Baba and Bitmasks

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Baba was asked to teach bitmasks to the first years but he himself is very weak in maths. He decided to consult his friend Pandey who gave him this very hard problem on maths and functions.

Given an array A containing N integers, consider all possible subarrays of the form $[L, R]$ where $(1 \leq L \leq R \leq N)$ and compute the following function f defined as follows :

$$f(L, R) = (M_1(L, R) \mid M_2(L, R))^2 - (M_1(L, R) \& M_2(L, R))^2$$

where $M_1(L, R)$ = min element in the subarray $[L, R]$
and $M_2(L, R)$ = second min element in the subarray $[L, R]$

Find the max value that the function f can attain over all possible subarrays of the given array.

Baba has no clue how to approach this problem. Can you help him ?

Input

First line will contain single integer t ($1 \leq t \leq 10^5$) denoting the number of test cases.

Next $2 * t$ lines describe the test cases in the following format.

First line depicts a single integer N ($1 \leq N \leq 10^6$) denoting number of elements in the array A.

The next line contains N space separated integers, where the $i'th$ integer denotes the value of A_i ($1 \leq A_i \leq 10^9$).

Output

For every test case, output a single integer, the maximum value that the function f can attain.

Example

standard input	standard output
3	5
3	216
2 3 3	196
4	
5 4 3 15	
5	
3 2 6 8 3	

Note

It is not necessary that each array has only distinct integers. Sum of n over all test files $\leq 10^6$.