Automatic Advertisement Placement System

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	1024 megabytes

Moloco is an advertisement technology company which helps various companies all around the world improve their online advertising. By using Moloco's technology, internet users can view more relevant ads, and advertisers can promote their products more effectively.

Moloco's automatic advertisement placement system groups pending advertisement requests in real-time to maximize efficiency. Each advertisement request has a positive number associated to it, denoting the cost required to process the request. Given N pending requests in queue, the system processes all requests by repeating the following procedure.

- Check up to 3 requests from the front of the currently pending queue. Select 2 of them, and process them together, and then remove them both from the queue. The cost to be paid is the maximum of the costs required to process each of the two requests.
- If there is only one request in the currently pending queue, process and remove it from the queue. In this case, the cost is the cost required to process the request.

Find the minimum total cost required for the system to process all advertisement requests.

Input

The first line of input contains T, denoting the number of testcases. ($1 \leq T \leq 50\,000$)

The first line of input for each testcase contains N, denoting the number of advertisement requests. ($1 \leq N \leq 1\,000\,000$)

The second line of input contains N space-separated integers $A_1, A_2, \cdots, A_N$, denoting the cost required to process each request. ($1 \leq A_i \leq 10^9$)

The sum of N over all testcases does not exceed $1\,000\,000$.

Output

For each testcase, print the minimum total cost in a single line.

Example

standard input	standard output
2 5 1 6 3 2 5 2 314 1592	11 1592