Problem A. xuanquang1999 and the Problem Selection Process

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

VNOI Cup is a competitive programming contest that requires participants to use their knowledge of algorithms and data structures to solve problems presented in each round. Although it has only been organized for two seasons, the VNOI Cup has attracted a large number of participants. One of the reasons for this is the high quality, uniqueness, and challenging nature of the problems set by the problem setters team. However, selecting problems for a round is not an easy task. The problem setters team has created too many good problems, which has left the coordinator, *Kuroni*, struggling to choose the problems for the final round!

The members of the team have proposed n problems with different topics. The originality of the problems is represented by the values $a_1, a_2, \ldots, a_n$.

To help *Kuroni* reduce the number of problems to consider while maintaining the originality of the problems, *xuanquang1999* suggests that some problems can be replaced by merging them to create a more original problem. Specifically, *xuanquang1999* can perform the following transformations:

- Choose an index i such that $1 \le i < |a|$ and $a_i < a_{i+1}$.
- Create a new problem with originality value of $x = a_i + a_{i+1}$.
- Remove the i-th and $(i+1)$-th problems from the list and insert the new problem with originality value x at position i.
- After removal, the indices of problems starting from $i+2, i+3, \ldots$ will be decreased by 1.

By using these transformations optimally (zero or more times), help *xuanquang1999* determine the minimum number of problems achievable so that *Kuroni* can more easily select the problems for the final round!

Input

The first line contains an integer t ($1 \le t \le 10\,000$) – the number of test cases. The description of each test case follows.

The first line of each test case contains an integer n ($2 \le n \le 200\,000$) – the number of problems proposed by the problem selection committee.

The second line of each test case contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 10^9$) – the uniqueness values of the problems proposed by the problem setters team.

The sum of n over all test cases does not exceed 200 000.

Output

For each test case, print an integer representing the minimum number of problems that *xuanquang1999* can achieve using the given transformations (zero or more times).

Scoring

The score for this problem is 1250 points.

Example

standard input	standard output
3 6 2 3 1 2 4 3 4 1 1 1 2 5 1 1 1 1 1	2 1 5

Note

In the first example, an optimal way to transform the originality values of the problems is as follows:

Selected index	Array a before transformation		Array a after transformation
Choose $i = 3$:	$[2, 3, \underline{1}, \underline{2}, 4, 3]$	$\rightarrow$	$[2, 3, \underline{3}, 4, 3]$
Choose $i = 1$:	$[\underline{2}, \underline{3}, 3, 4, 3]$	$\rightarrow$	$[\underline{5}, 3, 4, 3]$
Choose $i = 2$:	$[5, \underline{3}, \underline{4}, 3]$	$\rightarrow$	$[5, \underline{7}, 3]$
Choose $i = 1$:	$[\underline{5}, \underline{7}, 3]$	$\rightarrow$	$[\underline{12}, 3]$

In the second example, an optimal way to transform the originality values of the problems is as follows:

Selected index	Array a before transformation		Array a after transformation
Choose $i = 3$:	$[1, 1, \underline{1}, \underline{2}]$	$\rightarrow$	$[1, 1, \underline{3}]$
Choose $i = 2$:	$[1, \underline{1}, \underline{3}]$	$\rightarrow$	$[1, \underline{4}]$
Choose $i = 1$:	$[\underline{1}, \underline{4}]$	$\rightarrow$	$[\underline{5}]$

In the third example, it is not possible to perform any transformations to reduce the number of problems.