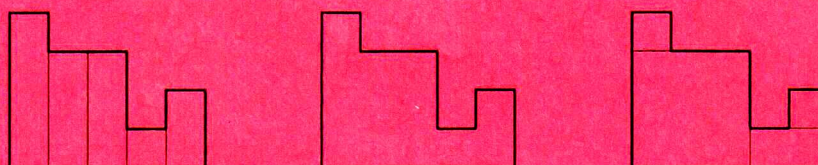


Problem 3: Histogram

Filip enjoys cutting with scissors – his latest specialty is cutting graph paper along the grid lines into rectangles of various sizes. Recently, he found a huge stack of graph paper with histograms. Each sheet contains a histogram along the x -axis, with columns rising along the y -axis, as shown in the figure below. Filip wants to cut each histogram into rectangles – but it must be the smallest possible number of rectangles. The trouble is, he always asks his parents if he truly got the minimum number. Help!



The left figure shows a histogram, the center figure the outline of the histogram, and the right figure a possible way of splitting the histogram into 4 rectangles. For this input, 4 is the smallest number of rectangles that the histogram can be cut into.

Input specification:

The first line contains k , the number of histograms. Each histogram is described by two lines. The first line contains n , the number of columns in the histogram. The second line contains n column heights describing the histogram.

All consecutive numbers are separated by white space. You can assume that each column is of non-negative integer height and $n \leq 10,000,000$.

Output specification:

The output contains k lines. For each line, the output contains the minimum number of rectangles that the histogram can be cut into.

Sample input:

```
2
5
4 3 3 1 2
6
0 1 2 3 4 5
```

Sample output:

```
4
5
```

Explanation:

The first sample data set corresponds to the figure above.