Given N nodes, each node is labeled with an integer between 1 and 10^6 (**inclusive and labels are not necessarily distinct**). Two nodes have an edge between them, if and only if the GCD (Greatest Common Divisor) of the labels of these nodes is **greater than 1**. Count the number of connected components in the graph.

Input

First line of the input T ($T \leq 100$) denotes the number of testcases. Then T cases follow. Each case consists of 2 lines. The first line has a number N ($1 \leq N \leq 10^5$) denoting the number of nodes. The next line consists of N numbers. The i-th ($1 \leq i \leq n$) number X_i ($1 \leq X_i \leq 10^6$) denotes the label of the node i.

Output

For each case you have to print a line consisting consisting the case number followed by an integer which denotes the number of connected components. Look at the output for sample input for details.

Sample Input

```
2
3
2 3 4
6
2 3 4 5 6 6
```

Sample Output

```
Case 1: 2
Case 2: 2
```