A set of integers is called prime independent if none of its member is a prime multiple of another member. An integer a is said to be a **prime multiple** of b if,

$$a = b \times k \quad \text{(where } k \text{ is a prime [1])}$$

So, 6 is a prime multiple of 2, but 8 is not. And for example, $\{2, 8, 17\}$ is prime independent but $\{2, 8, 16\}$ or $\{3, 6\}$ are not.

Now, given a set of distinct positive integers, calculate the largest prime independent subset.

Input

Input starts with an integer T (≤ 25), denoting the number of test cases.

Each case starts with an integer N ($1 \leq N \leq 40000$) denoting the size of the set. Next line contains N integers separated by a single space. Each of these N integers are distinct and between 1 and 500000 inclusive.

Output

For each case, print the case number and the size of the largest prime independent subset.

Notes:

1. An integer is said to be a prime if it's divisible by exactly two distinct integers. First few prime numbers are 2, 3, 5, 7, 11, 13, ...

Sample Input

```
3
5
2 4 8 16 32
5
2 3 4 6 9
3
1 2 3
```

Sample Output

```
Case 1: 3
Case 2: 3
Case 3: 2
```