

# Magical GCD

**Problem ID:** magicalgcd**CPU Time limit:** 8 seconds**Memory limit:** 1024 MB**Difficulty:** 5.7**Author:** Adam Polak**Source:** Central Europe Regional Contest (CERC) 2013**License:** For educational use only

The *Magical GCD* of a nonempty sequence of positive integers is defined as the product of its length and the greatest common divisor of all its elements.

Given a sequence  $(a_1, \dots, a_n)$ , find the largest possible Magical GCD of its connected subsequences.

## Input

The first line of input contains the number of test cases  $T$ . The descriptions of the test cases follow:

The description of each test case starts with a line containing a single integer  $n$ ,  $1 \leq n \leq 100\,000$ . The next line contains the sequence  $a_1, a_2, \dots, a_n$ ,  $1 \leq a_i \leq 10^{12}$ .

## Output

For each test case output one line containing a single integer: the largest Magical GCD of a connected subsequence of the input sequence.

### Sample Input 1

```
1
5
30 60 20 20 20
```

### Sample Output 1

```
80
```