6172 Hailstone HOTPO

The *hailstone sequence* is formed in the following way:

- If n is even, divide it by 2 to get n'
- if n is odd, multiply it by 3 and add l to get n'

It is conjectured that for any positive integer number n, the sequence will always end in the repeating cycle: $4, 2, 1, 4, 2, 1, \ldots$. Suffice to say, when $n == 1$, we will say the sequence has ended.

Write a program to determine the largest value in the sequence for a given n.

Input

The first line of input contains a single integer P, $(1 \leq P \leq 100000)$, which is the number of data sets that follow. Each data set should be processed identically and independently.

Each data set consists of a single line of input consisting of two space separated decimal integers. The first integer is the data set number. The second integer is n, $(l \leq n \leq 100,000)$, which is the starting value.

Output

For each data set there is a single line of output consisting of the data set number, a single space, and the largest value in the sequence starting at and including n.

Sample Input

```
4
1 1
2 3
3 9999
4 100000
```

Sample Output

```
1 1
2 16
3 101248
4 100000
```