B • 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 **1** 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, …` 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 ≤ *P* ≤ 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**, (**1 ≤ n ≤ 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	Sample Output
4 1 1 2 3 3 9999 4 100000	1 1 2 16 3 101248 4 100000

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