A • 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 \( P \), \((1 \leq P \leq 100000)\), 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 \( n \), \((1 \leq n \leq 100,000)\), 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 \( n \).

<table>
<thead>
<tr>
<th>Sample Input</th>
<th>Sample Output</th>
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<tbody>
<tr>
<td>4 1 1 2 3 3 9999 4 100000</td>
<td>1 1 2 16 3 101248 4 100000</td>
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