F(x)

https://vjudge.net/problem/hdu-4734

For a decimal number x with n digits ($A_nA_{n-1}A_{n-2}$ ... A_2A_1), we define its weight as $F(x) = A_n * 2^{n-1} + A_{n-1} * 2^{n-2} + ... + A_2 * 2 + A_1 * 1$. Now you are given two numbers A and B, please calculate how many numbers are there between 0 and B, inclusive, whose weight is no more than F(A).

Input

The first line has a number T (T <= 10000) , indicating the number of test cases.

For each test case, there are two numbers A and B (0 <= A,B < 10^9)

Output

For every case,you should output "Case #t: " at first, without quotes. The *t* is the case number starting from 1. Then output the answer.

Sample

Input	Output
3 0 100 1 10 5 100	Case #1: 1 Case #2: 2 Case #3: 13