

7045 Last Defence

Given two integers A and B . Sequence S is defined as follow:

- $S_0 = A$
- $S_1 = B$
- $S_i = |S_{i-1} - S_{i-2}|$ for $i \geq 2$

Count the number of distinct numbers in S .

Input

The first line of the input gives the number of test cases, T . T test cases follow. T is about 100000.

Each test case consists of one line — two space-separated integers A, B . ($0 \leq A, B \leq 10^{18}$).

Output

For each test case, output one line containing 'Case # x : y ', where x is the test case number (starting from 1) and y is the number of distinct numbers in S .

Sample Input

```
2
7 4
3 5
```

Sample Output

```
Case #1: 6
Case #2: 5
```