# Recycled Numbers

## Problem

Do you ever become frustrated with television because you keep seeing the same things, recycled over and over again? Well I personally don't care about television, but I do sometimes feel that way about numbers.

Let's say a pair of distinct positive integers (*n*, *m*) is *recycled* if you can obtain *m* by moving some digits from the back of *n* to the front without changing their order. For example, (12345, 34512) is a recycled pair since you can obtain 34512 by moving 345 from the end of 12345 to the front. Note that *n* and *m* must have the same number of digits in order to be a recycled pair. Neither *n* nor *m* can have leading zeros.

Given integers **A** and **B** with the same number of digits and no leading zeros, how many distinct recycled pairs (*n*, *m*) are there with $A \le n < m \le B$?

## Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each test case consists of a single line containing the integers **A** and **B**.

## Output

For each test case, output one line containing "Case #x: y", where x is the case number (starting from 1), and y is the number of recycled pairs (*n*, *m*) with $A \le n < m \le B$.

## Limits

Memory limit: 1GB.
Time limit: 30 seconds per test set.
$1 \le T \le 50$.
**A** and **B** have the same number of digits.

**Test set 1 (Visible Verdict)**

$1 \le A \le B \le 1000$.

**Test set 2 (Hidden Verdict)**

$1 \le A \le B \le 2000000$.

## Sample

| Sample Input | Sample Output |
|---|---|
| 4<br>1 9<br>10 40 | Case #1: 0<br>Case #2: 3<br>Case #3: 156<br>Case #4: 287 |

```
100 500
1111 2222
```

**Are we sure about the output to Case #4?**

Yes, we're sure about the output to Case #4.

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100 500
1111 2222
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