SPOJ - BALNUM - Balanced Numbers

Balanced numbers have been used by mathematicians for centuries. A positive integer is considered a balanced number if:

1) Every **even** digit appears an **odd** number of times in its decimal representation

2) Every **odd** digit appears an **even** number of times in its decimal representation

For example, 77, 211, 6222 and 112334445555677 are balanced numbers while 351, 21, and 662 are not.

Given an interval [A, B], your task is to find the amount of balanced numbers in [A, B] where both **A and B are included.**

Input

The first line contains an integer T representing the number of test cases.

A test case consists of two numbers A and B separated by a single space representing the interval. You may assume that $1 <= A <= B <= 10^{19}$

Output

For each test case, you need to write a number in a single line: the amount of balanced numbers in the corresponding interval

Example

Input:

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2

1 1000

1 9
```

Output:

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147

4
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