

Demented Numbers

Problem Code: **DEMENTED**



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Consider the number 28. If we take the sum of square of its digits, 2^2+8^2 , we get 68. Taking the sum of squares again, we get $6^2+8^2=100$. Doing this again, we get $1^2+0^2+0^2=1$. Any such number, which ultimately leads to 1, is called a demented number.

Given two numbers A and B, $A \leq B$, output the number of demented numbers between A and B, inclusive.

All Submissions
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Successful Submissions



Input

First line of input contains a single integer T, the number of test cases. Each test case consists of a line containing two space separated integers A and B.

Output

For each test case output a single line containing the number of demented numbers between A and B, inclusive.

Constraints

$1 \leq T \leq 1000$

$1 \leq A < B \leq 2147483647$

B - A ≤ 100

Sample Input

```
3
1 10
100 150
1000 1099
```

Sample Output

```
3
7
13
```

Explanation

Explanation for first test case: The demented numbers between 1 and 10 are 1, 7 and 10.

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Tags: [directi_campus \(/tags/problems/directi_campus\)](#)

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Time Limit: 4 secs

Source Limit: 50000 Bytes

Languages: C, CPP 4.3.2, CPP 6.3, CPP14, JAVA, PYTH, PYTH 3.5

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