Strange numbers

HackerRank

Let $length(A)$ denote the count of digits of a number A in its decimal representation.
John is looking for new methods of determining which numbers are strange all day long.
All non-negative numbers of length 1 are strange. Further, a number X with $length(X) \geq 1$ can also be considered strange if and only if

- X is evenly divisible by $length(X)$
- the number $X/length(X)$ is recursively strange

Your task is to calculate how many strange numbers belong to an interval $[L, R]$.

Input Format
The first line contains single integer T - the number of test cases. Next T lines contain two integers separated by single space L and R.

Output Format
In T lines, print T integers - count of strange numbers belonging to the interval $[L, R]$.

Constraints
$1 \leq T \leq 200$
$0 \leq L < R \leq 10^{18}$

Sample Input

```
5
7 25
45 50
1 100
99 103
0 1000000
```

Sample Output

```
10
1
26
0
96
```

Explanation
First testcase: There are 10 strange numbers that belong to the interval $[7, 25]$. They are $7, 8, 9, 10, 12, 14, 16, 18, 20, 24$.
Second testcase: Only 48 satisfies the given constraints.