

10533 Digit Primes

A prime number is a positive number, which is divisible by exactly two different integers. A digit prime is a prime number whose sum of digits is also prime. For example the prime number 41 is a digit prime because $4 + 1 = 5$ and 5 is a prime number. 17 is not a digit prime because $1 + 7 = 8$, and 8 is not a prime number. In this problem your job is to find out the number of digit primes within a certain range less than 1000000.

Input

First line of the input file contains a single integer N ($0 < N \leq 500000$) that indicates the total number of inputs. Each of the next N lines contains two integers t_1 and t_2 ($0 < t_1 \leq t_2 < 1000000$).

Output

For each line of input except the first line produce one line of output containing a single integer that indicates the number of digit primes between t_1 and t_2 (inclusive).

Sample Input

```
3
10 20
10 100
100 10000
```

Sample Output

```
1
10
576
```

Note: You should at least use `scanf()` and `printf()` to take input and produce output for this problem. `cin` and `cout` is too slow for this problem to get it within time limit.