

Devlali Numbers

Devlali numbers were an important coinage by Indian recreational mathematician D. R. Kaprekar.

For any positive integer n , define $d(n)$ as the sum of n and the digits of n . Eg, $d(199) = 199 + 1 + 9 + 9 = 218$.

For a positive number m , if there exists no positive number r such that $d(r) = m$, then m is a Devlali number. First few Devlali numbers are 1, 3, 5, 7, ... so on.

A prime number falling in this family is called a Devlali Prime. First few Devlali Primes are 3, 5, 7, ... so on.

Input

First line contains integer Q

Next Q lines contain two integers A and B

Output

print Q lines, each listing number of Devlali Primes in range $[A,B]$ (both inclusive)

Limits

$1 \leq Q \leq 100000$

$0 \leq A \leq B \leq 1000000$

Example

Input

```
3
1 3
0 10
5 8
```

Output

```
1
3
2
```