

6984 Kiwi Number

The New Zealand government is super-excited about the Cricket World Cup 2015 happening in their country. Hence, it has decided to conduct a census on cricket to find out how many people are interested in the sport, etc.

The statistics obtained are given to us as a range of numbers from A to B (inclusive). In these statistics, the government is interested in some particular numbers called “Kiwi Numbers”.

A number is called a Kiwi Number if it has a prime number of factors. A prime number N has exactly two divisors, 1 and N .

Can you help the government by calculating the number of Kiwi numbers in the given range?

Input

The first line contains the number of test cases T .

Each of the next T lines contains two space separated numbers A and B .

Output

For each test case, output the required answer on a separate line.

Constraints:

- $1 \leq T \leq 100$
- $2 \leq A \leq B \leq 1000000000$
- $B - A \leq 200000$

Explanation: For the first case, the Kiwi numbers are 2, 3, 4, 5, 7, 9.

Sample Input

```
3
2 10
100 100
578 720
```

Sample Output

```
6
0
23
```