Problem E – 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 <= T <= 100
2 <= A <= B <= 1000000000
B - A <= 200000

Sample Input:
3
2 10
100 100
578 720

Sample Output:
6
0
23

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

Time limit to be provided separately.