

Almost prime numbers are the non-prime numbers which are divisible by only a single prime number. In this problem your job is to write a program which finds out the number of almost prime numbers within a certain range.

Input

First line of the input file contains an integer N ($N \leq 600$) which indicates how many sets of input are there. Each of the next N lines make a single set of input. Each set contains two integer numbers low and $high$ ($0 < low \leq high < 10^{12}$).

Output

For each line of input except the first line you should produce one line of output. This line contains a single integer, which indicates how many almost prime numbers are within the range (inclusive) $low \dots high$.

Sample Input

```
3
1 10
1 20
1 5
```

Sample Output

```
3
4
1
```