Challenge 2 - Almost prime

A composite number is a positive integer that has at least one positive divisor other than one or the number itself. In other words, a composite number is any positive integer greater than one that is not a prime number.
For example, `14 = 2*7` and `18 = 2*3*3` are composite numbers.

We will say a number is "almost prime" if it has exactly two (not necessarily distinct) prime factors.

For example, the following numbers are almost prime: `6 = 2*3`, `25 = 5*5`. And the following numbers are not: `17` (prime), `81 = 3*3*3*3`.

Please help us get an idea about how many almost prime numbers there are in certain integer intervals.

Input

The first line contains an integer `T`, the number of test cases. `T` lines follow, containing two integers each: `A` and `B`, separated by a space.

Output

For each test case, print the number of almost prime numbers `P` that verify `A ≤ P ≤ B`.

Constraints

```
1 ≤ T ≤ 100
1 ≤ A ≤ B ≤ 10^8
```

Sample input

```
2
1 10
```

```
10 20
```

Sample output

```
4
3
```

Test & submit your code

We provide a form to test and submit your code. You need to pass the test phase before attempting the submit phase.

Test your program

Download test input

Program output:

Choose File no file selected

Submit test output

A nice output will tell you if your program got the right solution or not. You can try as many times as you need.

Submit your program to the challenge

You have not solved the test phase yet!

Note that you first need to solve the test phase before submitting the code. During the submit phase, in some problems, we might give your program harder questions, so try to make your program failsafe.

Important: In this phase, you must provide the source code used to solve the challenge and, if necessary, a brief explanation of how you solved it.

Remember **you can only submit once!** Once your solution is submitted you won't be able to amend it to fix issues or make it faster, so please be sure your solution is finished before submitting it.

If you have any doubts, please check the info section.

Go ahead

I'm done! :)

Once you have submitted your code, the page should be automatically refreshed so you can continue to next challenge.

I'm stuck! :(

Be sure you follow the Tuenti Engineering twitter for updates and possible hints during the contest.

If this challenge is too hard and you are blocked, you will be able to skip it after two hours. Note that **you won't be able to complete it later**, and you have a limited number of challenges to skip.

Finally, if you run out of skips but are still really stuck with one problem, you will be able to skip it after 24 hours.

Challenge status:

Test case	Not done
Solution submitted	Not done
Skip	You still have to wait 0h, 30m and 0s to be able to skip this challenge

Refresh status