Sum of Primes 2

Time limit: 0.6s   **Memory limit:** 64M

Bob needs to do a lot of practice with prime numbers for homework. Being a curious student, he will ask you Q questions. Each of these questions will be of the form: what is the sum of all prime numbers between A and B (inclusive)?

Input Specification

The first line contains a single integer: Q

Each of the next Q lines contains two space-separated integers: A, B

Output Specification

Output the answer to each question on a separate line.

Constraints

$1 \leq Q \leq 10^5$

$1 \leq A \leq B \leq 10^5$

Subtasks

Subtask 1 [20%]

$1 \leq Q \leq 1000$

$1 \leq A \leq B \leq 1000$

Subtask 2 [80%]

No additional constraints.

Sample Input

```
3
1 2
5 11
3 19
```

Sample Output

```
2
23
75
```