Prime-partite Graph

Problem Code: **PRMPRT**

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We have a graph with N nodes (numbered 1 through N). For each valid u and v, there is an undirected edge between nodes u and v if v is a prime divisor of u or u is a prime divisor of v.

You should answer Q queries. In each query, you should find the length of the shortest path between two given nodes a and b or determine that there is no path between them.

Note: Because of large I/O, please use fast I/O methods.

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Input

- The first line of the input contains a single integer N.
- The second line contains a single integer Q.
- Each of the next Q lines contains two space-separated integers a and b describing a query.

Output

For each query, print a single line containing one integer - the distance between the nodes or -1 if the nodes are not connected.

Constraints

- $1 \le N, Q \le 10^6$
- $2 \le a, b \le N$

Example Input

```
20
3
2 3
2 6
2 9
```

Example Output

```
2
1
3
```

Explanation

For $a = 2$ and $b = 9$, one possible shortest path is $2 \to 6 \to 3 \to 9$.

Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	C, CPP14, JAVA, PYTH, PYTH 3.6, PYPY, kotlin
Practice link:	Solve practice problem (https://www.codechef.com/problems/PRMPRT)

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Comments

Need help? Post a comment. But before that please spare a moment to read the guidelines (http://discuss.codechef.com/questions/855/what-kind-of-comment-should-i-post-on-the-problem-page).

Help:
Supports **markdown (https://discuss.codechef.com/markdown_help/)**
Supports @mention e.g **@admin**

Preview Post

4★ akash19jain (/users/akash19jain) a minute ago
Hi, The questions are visible to the general audience which shouldn't be the case as the mirror round will be held later.

Reply

The time now is: 12:48:17 PM
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CodeChef was created as a platform to help programmers make it big in the world of **algorithms**, **computer programming**, and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and two smaller programming challenges at the middle and end of the month. We also aim to have training sessions and discussions related to **algorithms**, **binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

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