

Algorithm Design Term Project

2095. Scrum @Timus

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Source: Timus

Time limit: 1.0 second
Memory limit: 64 MB
Difficulty: 217

2095. Scrum

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Winter in Yekaterinburg is the longest time of the year. And everyone spends long winter evenings in his own way. Software engineer Ivan likes to work. So much that a perfect day for him is when he could spend the whole day until late at night in his corner office, without being distracted from writing code for all sorts of extraneous matter. The only pity is his supervisors do not strongly support him in this, all the time making him participate in all sorts of conversations and presentations.

From the first of January of the new year throughout the organization, it was decided to introduce a new order of the staff reporting to the supervisors. Every second day, each engineer should report to his immediate supervisor. Of the remaining days, every third day — to the head of his supervisor. Of the remaining days, every fourth day — to the head of the head of his supervisor. And so on. The organization is very large, so it can be assumed that for ordinary engineers there is an infinite number of levels of supervising. Ivan is not happy about all this bureaucracy, but he needs to learn to live with it. In particular, Ivan needs to plan his vacation so that it would include as many reporting days as possible and as little days, when he can work quietly, as possible. Ivan wants to count how many quiet days will be during his scheduled vacation in order to, possibly, move it to another time.

Input

The first line contains integers l and r that are the numbers of the first and the last scheduled days of Ivan's vacation, counting from the day of introduction of the new order in the company ($1 \leq l \leq r \leq 10^9$).

Output

Output the number of quiet days during scheduled vacation.

Sample

input	output
1 10	3

Notes

On the days with numbers 2, 4, 6, 8 and 10 Ivan will report to his immediate supervisor. In the day 5 — to the head of his supervisor, in the day 9 — to the head of the head of his supervisor. The days with numbers 1, 3 and 7 are quiet.

Problem Author: Dmitry Ivankov

Problem Source: Open Ural FU Personal Contest 2014

Tags: none ([hide tags for unsolved problems](#))

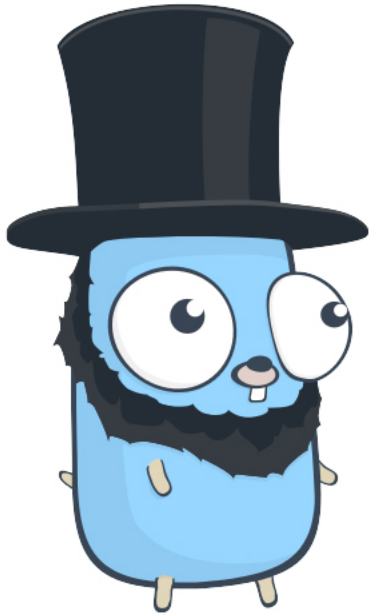
Difficulty: 217 [Printable version](#) [Submit solution](#) [Discussion \(3\)](#)

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Solution:

if Ivan starts at 1 and end at 10 days

10 days / 2 : Because we know that he has to report every two days. 5 days left are [1, 3, 5, 7, 9] and he has to report to the head of his supervisor of the remaining third days. And 4 days left are [1, 3, 7, 9], then he has to report to the head of head of his supervisor of the remaining fourth days. Which result only 3 days left are [1, 3, 7] for Ivan.



Solution: Dynamic Programming

```
def task(x):  
    i = 2  
    while x >= i:  
        x -= x // i  
        i += 1  
    return x
```

```
line = list(map(int, input().split()))  
print(task(line[1]) - task(line[0] - 1))
```

Author: [Lex](#) • Problem: [Scrum](#)

ID	Date	Author	Problem	Language	Judgement result	Test #	Execution time	Memory used
8655901	10:58:07 27 Nov 2019	Lex	2095. Scrum	Python 3.6	Accepted		0.109	260 KB
8652396	19:50:03 24 Nov 2019	Lex	2095. Scrum	Python 3.6	Accepted		0.109	268 KB

Reference

<https://acm.timus.ru/problem.aspx?space=1&num=2095>

<https://github.com/0trebus/timus/blob/master/2095.cpp>

