Chef and Divisor Tree | Problem Code: **CHEFDIV**

Tweet | 👍 Like | Share | Sign Up to see what your friends like.

All submissions for this problem are available.

Read problems statements in Mandarin Chinese, Russian and Vietnamese as well.

Chef has defined a new type of rooted tree - *divisor tree*. In this tree, every node has a positive integer written on it. It follows some rules:

- The root can have any positive integer written on it.
- Suppose a node has the integer A written on it, and suppose A has k proper divisors. [Note: Proper divisors of an integer are all its divisors except the integer itself. 1 has no proper divisor] Then this node will have exactly k child nodes, and each of A's proper divisors will be written on exactly one of the child nodes. For example, a node with number 12 written on it would have children with the numbers 1, 2, 3, 4, and 6 written on them.

You can observe that the nodes have 1 written on them, if and only if, they are leaves.

The score of a path in this tree is defined as the sum of degrees of all of the nodes in the path. The Score of the tree is defined as the maximum score of a path **from the root to one of the leaves**.

You are given two integers **A, B**. You want to find the sum of Scores of all the *divisor trees* which have n written on their root, where **A** ≤ n ≤ **B**.

Input

The only line of the input contains two space separated integers **A** and **B** respectively.

Output

Output a single integer corresponding to the answer of the problem.

Constraints

- $1 \le A \le B \le 10^{12}$

- $1 \le A \le B \le 50$

Subtask #2 (25 points):

- $1 \le A \le B \le 10^6$
- $B - A < 10^5$

Subtask #3 (25 points):

- $A = B$

Subtask #4 (40 points):

- Original constraints.

Example

```
Input 1:
11 12
```

```
Output 1:
14
```

```
Input 2:
932451 935212
```

```
Output 2:
101245
```
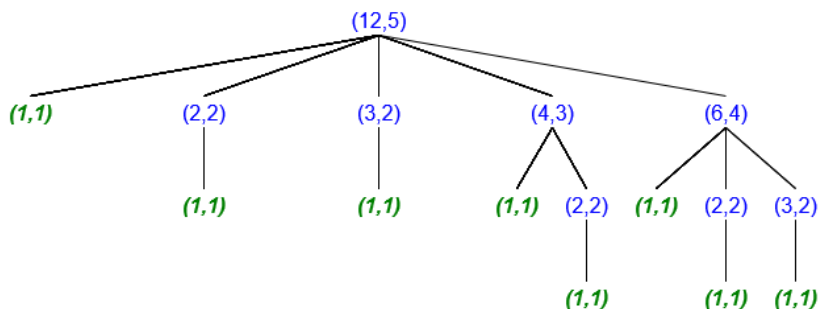

Explanation

Input 1.

Here we have, **A** = 11 and **B** = 12.

The Score of the *divisor tree* which has 12 written on its root is 12. This because the path 12 -> 6 -> 3 -> 1 (look at the figure below) has sum of the degrees of all nodes in it = 5 + 4 + 2 + 1 = 12. This is the maximum score of a path among all paths from root to the leaves. Hence, the Score of this tree is 12.

Note that in the figure, the nodes are denoted by (value written on it, degree of node), and the leaves are marked green.

You can find that the score of divisor tree which has 11 written on its root is 2.

Hence, answer will be 12 + 2 = 14.

Author: 4★ saluja123

Editorial:	https://discuss.codechef.com/problems/CHEFDIV
Tags:	april17, saluja123
Date Added:	23-02-2017
Time Limit:	1 secs
Source Limit:	50000 Bytes
Languages:	C, CPP14, JAVA, PYTH, PYTH 3.5, PYPY, CS2, PAS fpc, PAS gpc, RUBY, PHP, GO, NODEJS, HASK, SCALA, D, PERL, FORT, WSPC, ADA, CAML, ICK, BF, ASM, CLPS, PRLG, ICON, SCM qobi, PIKE, ST, NICE, LUA, BASH, NEM, LISP sbcl, LISP clisp, SCM guile, JS, ERL, TCL, PERL6, TEXT, SCM chicken, CLOJ, FS

Comments ▶

CodeChef - A Platform for Aspiring Programmers

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 another smaller programming challenge in the middle 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**.

Practice Section - A Place to hone your 'Computer Programming Skills'

Try your hand at one of our many practice problems and submit your solution in a language of your choice. Our **programming contest** judge accepts solutions in over 35+ programming languages. Preparing for coding contests were never this much fun! Receive points, and move up through the CodeChef ranks. Use our practice section to better prepare yourself for the multiple **programming challenges** that take place through-out the month on CodeChef.

Compete - Monthly Programming Contests and Cook-offs

Here is where you can show off your **computer programming skills**. Take part in our 10 day long monthly coding contest and the shorter format Cook-off **coding contest**. Put yourself up for recognition and win great prizes. Our **programming contests** have prizes worth up to INR 20,000 (for Indian Community), $700 (for Global Community) and lots more CodeChef goodies up for grabs.

Programming Tools	**Practice Problems**	**Initiatives**
Online IDE	Easy	Go for Gold
Upcoming Coding Contests	Medium	CodeChef for Schools
Contest Hosting	Hard	Campus Chapters
Problem Setting	Challenge	
CodeChef Tutorials	Peer	
CodeChef Wiki	School	
	FAQ's	