

# Euler Totient Function Sieve



In number theory, the totient  $\phi(n)$  of a positive integer  $n$  is defined to be the number of positive integers less than or equal to  $n$  that are coprime to  $n$ .

## Input

The lonely line in input contains two integers  $a, b$ .

## Output

Print  $\phi(n)$  for  $n$  from  $a$  to  $b$  (inclusive).

## Example

**Input:**

1 5

**Output:**

1  
1  
2  
2  
4

## Constraints

$0 < a < b < 10^{14}$

$b - a < 10^5$

Python can get AC under half the time limit (for any test case). My total PY3.4 time is 3.23s for 5 input files.

Have fun ;-)