**Longge's problem**

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| **Time Limit:** 1000MS |  | **Memory Limit:** 65536K |
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**Description**

Longge is good at mathematics and he likes to think about hard mathematical problems which will be solved by some graceful algorithms. Now a problem comes: Given an integer N(1 < N < 2^31),you are to calculate ∑gcd(i, N) 1<=i <=N.   
  
"Oh, I know, I know!" Longge shouts! But do you know? Please solve it.

**Input**

Input contain several test case.   
A number N per line.

**Output**

For each N, output ,∑gcd(i, N) 1<=i <=N, a line

**Sample Input**

2

6

**Sample Output**

3

15

**Source**

[POJ Contest](http://poj.org/searchproblem?field=source&key=POJ+Contest),Author:Mathematica@ZSU