北京大学 PEKING UNIVERSITY
JUDGE ONLINE FOR ACM/ICPC

Language: Default

Longge's problem

Time Limit: 1000MS **Memory Limit:** 65536K
Total Submissions: 8707 **Accepted:** 2917

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,Author:Mathematica@ZSU