SPOJ Problem Set (classical)

4141. Euler Totient Function

Problem code: ETF

English Vietnamese

In number theory, the totient [IMAGE] 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.

Given an integer n (1 <= n <= 10^6). Compute the value of the totient [IMAGE] .

Input

First line contains an integer T, the number of test cases. (T <= 20000)

T following lines, each contains an integer n.

Output

T lines, one for the result of each test case.

Example

Input:
```
5
1
2
3
4
5
```

Output:
```
1
1
2
2
4
```

Added by: Race with time
Date: 2009-03-27
Time limit: 1s
Source limit:50000B
Languages: All except: ERL TECS JS