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## ETF - Euler Totient Function

#number-theory ([/problems/tag/number-theory](#)) #totient ([/problems/tag/totient](#))

In number theory, the totient  $\varphi$  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  $n$  ( $1 \leq n \leq 10^6$ ). Compute the value of the totient  $\varphi$ .

### Input

First line contains an integer  $T$ , the number of test cases. ( $T \leq 20000$ )

$T$  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
```

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2. Please be careful, leave short comments only. Don't spam here.
3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some useful links).

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Added by: Race with time (/users/racer)  
Date: 2009-03-27  
Time limit: 0.161s  
Source limit: 50000B  
Memory limit: 1536MB  
Cluster: Cube (Intel G860) (/clusters/)  
Languages: All except: ERL JS-RHINO  
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#### Vote requirements



- ✓ be spoj user for at least 5 days
- ✗ solved 9 from 15 needed problems

✓ solve this problem

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Tag name

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