

Problem H. Relatives

Time limit 1000 ms
Mem limit 65536 kB
OS Linux

Given n , a positive integer, how many positive integers less than n are relatively prime to n ? Two integers a and b are relatively prime if there are no integers $x > 1$, $y > 0$, $z > 0$ such that $a = xy$ and $b = xz$.

Input

There are several test cases. For each test case, standard input contains a line with $n \leq 1,000,000,000$. A line containing 0 follows the last case.

Output

For each test case there should be single line of output answering the question posed above.

Sample

| Input | Output |
|-------|--------|
| 7 | 6 |
| 12 | 4 |
| 0 | |