

Halfway There

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 megabytes

Given an integer n , find the median of the list of all integers from 1 to $n - 1$ that are coprime with n .

Recall that integers a and b are called *coprime* if their greatest common divisor is 1. The *median* of a list L is defined to be the $\frac{|L|}{2}$ -th element of L if $|L|$ is even, and the $\frac{|L|+1}{2}$ -th element of L if $|L|$ is odd. Here L is assumed to be sorted in ascending order, $|L|$ denotes the length of L , and indices are 1-based.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^3$). Description of the test cases follows.

The only line of each test case contains a single integer n ($2 \leq n \leq 10^{18}$).

Output

For each test case, print a single integer — the median of the list of integers from 1 to $n - 1$ that are coprime with n .

Example

standard input	standard output
3	1
6	3
10	9
19	