Project Euler #72: Counting fractions

This problem is a programming version of Problem 72 from projecteuler.net

Consider the fraction, $\frac{n}{d}$, where n and d are positive integers. If $n < d$ and $GCD(n,d)=1$, it is called a reduced proper fraction.

If we list the set of reduced proper fractions for $d \le 8$ in ascending order of size, we get:

$$\frac{1}{8}, \frac{1}{7}, \frac{1}{6}, \frac{1}{5}, \frac{1}{4}, \frac{2}{7}, \frac{1}{3}, \frac{3}{8}, \frac{2}{5}, \frac{3}{7}, \frac{1}{2}, \frac{4}{7}, \frac{3}{5}, \frac{5}{8}, \frac{2}{3}, \frac{5}{7}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{7}{8}$$

It can be seen that there are 21 elements in this set.

How many elements would be contained in the set of reduced proper fractions for $d \le N$?

Input Format
First line contains T, number of test cases. T lines follow
Each line contains 1 integer N

Output Format
Print the result corresponding to each testcase on a new line.

Constraints
$1 \leq T \leq 100000$
$2 \leq N \leq 10^6$

Sample Input

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2
8
5
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Sample Output

```
21
9
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