The Farey sequence of order n is the sequence of completely reduced fractions between 0 and 1 which, when in lowest terms, have denominators less than or equal to n, arranged in ascending order. Farey sequence for different values of n are shown in the figure on the left below:

$F_1 = \{\frac{0}{1}, \frac{1}{1}\}$

$F_4 = \{\frac{0}{1}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{1}{1}\}$

$F_7 = \{\frac{0}{1}, \frac{1}{7}, \frac{1}{6}, \frac{1}{5}, \frac{1}{4}, \frac{2}{7}, \frac{1}{3}, \frac{2}{5}, \frac{3}{7}, \frac{1}{2}, \frac{4}{7}, \frac{3}{5}, \frac{2}{3}, \frac{5}{7}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \frac{1}{1}\}$

Figure 1:

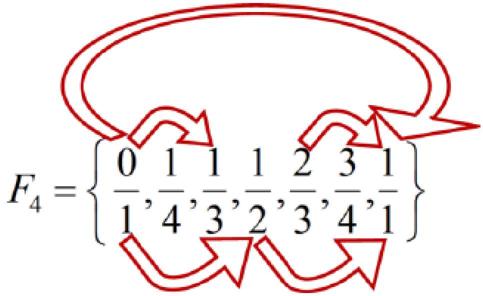

Figure 2: Five desired pairs in F4

It is very well known that if $\frac{m_1}{n_1}$ and $\frac{m_2}{n_2}$ and are two consecutive fractions of a Farey Sequence then $m_2n_1 - m_1n_2 = 1$. But many fractions which are not consecutive also show this property. For example, in F_7, $\frac{2}{5}$ and $\frac{1}{2}$ also show this property although they are not consecutive fractions in F_7. Given the value of n, your job is to find number of pair of non-consecutive fractions $\frac{m_i}{n_i}$ and $\frac{m_j}{n_j}$, such that $m_jn_i - m_in_j = 1$.

Input

Input file contains at most 20000 lines of input. Each line contains a positive integer which denotes the value of n ($0 < n < 1000001$). Input is terminated by a line containing a single zero. This line should not be processed.

Output

For each line of input produce one line of output. This line contains number of pair of non-consecutive fractions $\frac{m_i}{n_i}$ and $\frac{m_j}{n_j}$, $(j - i > 1)$ in Farey Series F_n, such that $m_jn_i - m_in_j = 1$.

Sample Input

```
1
4
0
```

Sample Output

```
0
5
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