Consider N disks in the plane: C_1, C_2, ..., C_N such that, for all i, where $0 < i < N$, we have the center of C_i on the circumference of C_{i+1}, and the center of C_n on the circumference of C_1. What is the maximum number of pairs of disks (C_i, C_j), with $1 \leq i, j \leq N$ such that C_i properly contains C_j. Note, the set T **properly contains**, the set S, if and only if $S \subseteq T$ and $S \neq T$.

Input

A number of inputs (< 1000) with integer N ($1 \leq N \leq 1000000$).

Output

Output one line per input, the answer.

Sample Input

```
1
2
3
```

Sample Output

```
0
0
1
```