In the Republic of Remoteland, the people celebrate their independence day every year. However, as it was a long long time ago, nobody can remember when it was exactly. The only thing people can remember is that today, the number of days elapsed since their independence (D) is a perfect square, and moreover it is the largest possible such number one can form as a product of distinct numbers less than or equal to n.

As the years in Remoteland have $1,000,000,007$ days, their citizens just need D *modulo* $1,000,000,007$. Note that they are interested in the largest D, not in the largest D *modulo* $1,000,000,007$.

Input

Every test case is described by a single line with an integer n, ($1 \leq n \leq 10,000,000$). The input ends with a line containing '0'.

Output

For each test case, output the number of days ago the Republic became independent, *modulo* $1,000,000,007$, one per line.

Sample Input

```
4
9348095
6297540
0
```

Sample Output

```
4
177582252
644064736
```