Twin primes are pairs of primes of the form $(p, p + 2)$. The term "twin prime" was coined by Paul Stckel (1892-1919). The first few twin primes are (3, 5), (5, 7), (11, 13), (17, 19), (29, 31), (41, 43). In this problem you are asked to find out the S-th twin prime pair where S is an integer that will be given in the input.

Input

The input will contain less than 10001 lines of input. Each line contains an integers S ($1 \leq S \leq 100000$), which is the serial number of a twin prime pair. Input file is terminated by end of file.

Output

For each line of input you will have to produce one line of output which contains the S-th twin prime pair. The pair is printed in the form ($p1$,¡space¿$p2$). Here ¡space¿ means the space character (ASCII 32) . You can safely assume that the primes in the 100000-th twin prime pair are less than 20000000.

Sample Input

```
1
2
3
4
```

Sample Output

```
(3, 5)
(5, 7)
(11, 13)
(17, 19)
```