Lucky numbers are defined by a variation of the well-known **sieve of Eratosthenes**. Beginning with the natural numbers **strike out all even ones**, leaving the odd numbers 1, 3, 5, 7, 9, 11, 13, ... The second number is 3, next **strike out every third number**, leaving 1, 3, 7, 9, 13, ... The third number is 7, next **strike out every seventh number** and continue this process infinite number of times. The numbers **surviving** are called **lucky numbers**. The **first few lucky numbers** are:

$$1, 3, 7, 9, 13, 15, 21, 25, 31, 33, \ldots \ldots$$

In this problem your task is to test whether a number can be written as the sum of two lucky numbers.

Input

The input file contains at most 100000 lines of input. Each line contains a single integer n ($0 < n \leq 2000000$). Input is terminated by end of file.

Output

For each line of input produce one line of output. This line should be of one of the following types depending on whether n is expressible as the sum of two lucky numbers.

n is not the sum of two luckies!
n is the sum of L_1 and L_2.

For the second case, always make sure that $(L_2 - L_1)$ is **nonnegative** and **minimized**.

Sample Input

```
11
12
```

Sample Output

```
11 is not the sum of two luckies!
12 is the sum of 3 and 9.
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