You hike up the steps into the bleachers to discover the next event. For some reason, all the seats in this section are numbered with only prime numbers. In the neighboring section the seats are all even numbers. The managing event coordinator explains how these numbers relate:

Goldbach's conjecture says that every positive even number greater than 2 is the sum of two prime numbers. This conjecture has never been proven in the general case, but it has been confirmed for numbers much larger than most programming environments' native data types.

problem 9
Goldbach's Conjecture
6 points

Write a program to print the two prime numbers that sum to a given even integer. There will often be more than one answer, so print the solution with the minimum difference between the two prime numbers.

Input

Each line of input will be a positive, even integer greater than two, except the last line, which will be zero. The maximum input value will be 1000.

```
28
62
992
16
0
```

Output

The program must print the two prime numbers and the sum in equation form in ascending numeric order. Print only the solution with the minimum difference between the two prime numbers.

```
11 + 17 = 28
31 + 31 = 62
421 + 571 = 992
5 + 11 = 16
```