Goldbach’s conjecture

Prime numbers are positive integers that is larger than 1 and have no divisors other than 1 and itself. For example, 5 is prime, since no number except 1 and 5 divides it. On the other hand, 6 is not a prime since 6 = 2 × 3.

Goldbach's conjecture is one of the famous unsolved problems in number theory and in all of mathematics. It states:

> Every even integer greater than 2 can be expressed as the sum of two primes.

Such a number is called a ***Goldbach number***. Expressing a given even number as a sum of two primes is called a ***Goldbach partition*** of the number. For example, 4 = 2 + 2, 6 = 3 + 3, 8 = 3 + 5, 10 = 7 + 3 or 10 = 5 + 5, 12 = 5 + 7, 14 = 3 + 11 or 14 = 7 + 7. Note that Goldbach partition has been found for any even integer n less than 100,000.

Given any even integer $n \geq 4$, write a program that prints the two primes of the Goldbach partition of n. If there are more than one Goldbach partitions of n, find a partition such that **the difference of the two primes of it is minimized**.

Input

Your input consists of an arbitrary number of lines, but no more than 1,000.

Each line contains an even integer n $(4 \leq n \leq 100{,}000)$

The end of input is indicated by a line containing only the value -1.

Output

For each input line, find the Goldbach partition as described above, and print its two primes in non-decreasing order, separated by a space.

Example

Standard input	Standard output
8 10 16 -1	3 5 5 5 5 11

Time Limit

1 second.