

## 3315 Goldbach++

Prime numbers provide a rich source of speculative mathematical ideas. Some of the mystical atmosphere that surrounds them can be traced back to Pythagoras and his followers who formed secret brotherhoods in Greece, during the 5th Century BC. The Pythagoreans believed that numbers had spiritual properties. The discovery that some numbers such as the square root of 2 cannot be expressed exactly as the ratio of two whole numbers was so shocking to Pythagoras and his followers that they hushed up the proof! Today, prime numbers are fascinating but they are also of commercial importance, since the best commercial and military ciphers depend on their properties.

In a letter dated June 7, 1742, Christian Goldbach wrote to Leonhard Euler what has become known through the mathematical ages as *The Goldbach Conjecture*. It is one of the oldest unsolved problems in number theory. In its modern form, it states that **every even number larger than two can be expressed as a sum of two prime numbers**. It is also true that some odd numbers can also be expressed as summation of two primes.

For this problem, you will try to see when a similar proposal works for less restrictive requirements. The conditions in detail are:

- You have to express a number  $n$  ( $1 \leq n \leq 1000$ ) as a summation of  $t$  ( $1 \leq t \leq 14$ ) primes.
- The number 1 is not prime. The only even prime is 2.
- Among the  $t$  primes each odd primes can be present at most two times while the even prime can be present only once. For example,  $(3+3+5+5)$  is valid, but  $(3+3+3+7)$  or  $(2+2+3)$  is invalid according to this particular rule.
- If there is more than one solution, print the one with the smallest prime number. If there are more than one with the smallest prime, print the one with the second smallest prime, etc. So, to represent 10 as the sum of 2 primes, you should use the combination  $(3+7)$ , not  $(5+5)$ , since 3 is smaller than 5.
- It is possible there will not be a solution.

### Input

Each line contains two integers  $n$  and  $t$  as defined in the problem statement. The last line of the input file will be a line with just the two values '0' and '0'. This line should not be processed.

### Output

For each line of input there will be one line of output. It will be either

No solution

if there exists no possible summation having the restriction given above, or

$$n = p_1+p_2+p_3+\dots+p_t$$

where  $n$  is as described above, and the  $t$  subscripted  $p$ 's are the primes that add up to  $n$ . The  $p$ 's should be in non-decreasing order. The '=' is surrounded by single spaces, and otherwise there are no other spaces in the line.

**Sample Input**

```
20 10
100 4
10 2
0 0
```

**Sample Output**

```
No Solution
100 = 3+3+5+89
10 = 3+7
```