This problem is based on an exercise of David Hilbert, who pedagogically suggested that one study the theory of $4n + 1$ numbers. Here, we do only a bit of that.

An $H$-number is a positive number which is one more than a multiple of four: $1, 5, 9, 13, 17, 21, \ldots$ are the $H$-numbers. For this problem we pretend that these are the only numbers. The $H$-numbers are closed under multiplication.

As with regular integers, we partition the $H$-numbers into units, $H$-primes, and $H$-composites. $1$ is the only unit. An $H$-number $h$ is $H$-prime if it is not the unit, and is the product of two $H$-numbers in only one way: $1 \times h$. The rest of the numbers are $H$-composite.

For examples, the first few $H$-composites are: $5 \times 5 = 25$, $5 \times 9 = 45$, $5 \times 13 = 65$, $9 \times 9 = 81$, $5 \times 17 = 85$.

Your task is to count the number of $H$-semi-primes. An $H$-semi-prime is an $H$-number which is the product of exactly two $H$-primes. The two $H$-primes may be equal or different. In the example above, all five numbers are $H$-semi-primes. $125 = 5 \times 5 \times 5$ is not an $H$-semi-prime, because it’s the product of three $H$-primes.

**Input**

Each line of input contains an $H$-number $\leq 1,000,001$. The last line of input contains $0$ and this line should not be processed.

**Output**

For each inputted $H$-number $h$, print a line stating $h$ and the number of $H$-semi-primes between 1 and $h$ inclusive, separated by one space in the format shown in the sample.

**Sample Input**

```
21  
85  
789  
0  
```

**Sample Output**

```
21 0  
85 5  
789 62  
```