# Multiple Surprises

The problem presented consists of finding three consecutive numbers that meet the following conditions. The first number must be a multiple of 2, the second number must be a multiple of 3, and the third number must be a multiple of 4. To resolve this problem, we use a code developed in pyhton.

```python
multiples = [3,4,5]

def find_numeros(start=0):
    n = start
    while True:
        cumple = True
        for i in range(len(multiples)):
            if (n + i) % multiples[i] != 0:
                cumple = False
                break
        if cumple:
            for i in range(len(multiples)):
                print(f"numero_{i+1} = {n + i}")
            print()
            return n
        n += 1

x = find_numeros()
y = find_numeros(x + 1)
z = find_numeros(y + 1)
```

The code allows you to enter the desired multiples (in this case, 2, 3, and 4) and performs calculations to identify all groups of three consecutive numbers that meet the conditions. It then displays the results as lists.

```
numero_1 = 2
numero_2 = 3
numero_3 = 4

numero_1 = 14
numero_2 = 15
numero_3 = 16

numero_1 = 26
numero_2 = 27
numero_3 = 28
```

When we look at the result, we can find a pattern in which every 10 numbers the code finds a new list.

Then the problem asks what would happen if the multiples were now 3, 4 and 5. So we put it in the code, and it gives us the following results.

```
multiples = [3,4,5]
```

```
numero_1 = 3
numero_2 = 4
numero_3 = 5

numero_1 = 63
numero_2 = 64
numero_3 = 65

numero_1 = 123
numero_2 = 124
numero_3 = 125
```

Now it says to do it with themultiples of  4, 5 and 6. So we put it on the code.

```
multiples = [4,5,6]
```

```
numero_1 = 4
numero_2 = 5
numero_3 = 6

numero_1 = 64
numero_2 = 65
numero_3 = 66

numero_1 = 124
numero_2 = 125
numero_3 = 126
```

Now it get more complicated because now there are not 3 multiples instead now are 4. But with the sistem we built don´d matter how many multiples you put, the code its going to solve it.  This numbers are 2,3,4 and 5. So we put it again in the code and see the result.

```
multiples = [2,3,4,5]
```

```
numero_1 = 2
numero_2 = 3
numero_3 = 4
numero_4 = 5

numero_1 = 62
numero_2 = 63
numero_3 = 64
numero_4 = 65

numero_1 = 122
numero_2 = 123
numero_3 = 124
numero_4 = 125
```

Now instead of 4 multiples are 5. This multiples are 2, 3, 4, 5 and 6. As I says before don´t matter how many numbers we put, so lets see the results.

```
multiples = [2,3,4,5,6]
```

```
numero_1 = 2
numero_2 = 3
numero_3 = 4
numero_4 = 5
numero_5 = 6

numero_1 = 62
numero_2 = 63
numero_3 = 64
numero_4 = 65
numero_5 = 66

numero_1 = 122
numero_2 = 123
numero_3 = 124
numero_4 = 125
numero_5 = 126
```

The last challenge increase the difficult to 10 multiples from 1 to 10. so we put it in the code.

```
multiples = [1,2,3,4,5,6,7,8,9,10]
```

As you can see in this challenge the list there are a pattern in which from the last number to the new there is a space of 2511 Numbers.

```
numero_1 = 1
numero_2 = 2
numero_3 = 3
numero_4 = 4
numero_5 = 5
numero_6 = 6
numero_7 = 7
numero_8 = 8
numero_9 = 9
numero_10 = 10

numero_1 = 2521
numero_2 = 2522
numero_3 = 2523
numero_4 = 2524
numero_5 = 2525
numero_6 = 2526
numero_7 = 2527
numero_8 = 2528
numero_9 = 2529
numero_10 = 2530

numero_1 = 5041
numero_2 = 5042
numero_3 = 5043
numero_4 = 5044
numero_5 = 5045
numero_6 = 5046
numero_7 = 5047
numero_8 = 5048
numero_9 = 5049
numero_10 = 5050
```

The difference between the lists is the LCM of all the numbers together.

For example, in the last challenge, the difference between the lists is 2520. If we find the LCM of [1, 2, 3, 4...10], we get 2520.