 **Problem 1.** The following numbers are arranged in a certain logical order. Which number should replace the question mark?

12, 13, 17, 23, ?, 29

**Author:** Scarlett Lafa

**Answer:** 39, 93, 48, 84, 57, 75, 66


**Solution:** It should be noticed that each number is the sum of the digits of its two neighboring numbers to the right.  $12 = 1 + 3 + 1 + 7$ ,  $13 = 1 + 7 + 2 + 3$

Thus

$$23 = \text{sum of digits of ?} + 11$$

Sum of digits of ? = 12

Hence the possibilities are as follows: 39, 93, 48, 84, 57, 75, 66

 **Problem 2.** What number should be next in the sequence?

3, 13, 1113, 3113, 132113, ?

**Source:** “Logic test” Tim Dedopulos

**Choice:** Scarlett Lafa

**Answer:** 1113122113

**Solution:** We start with 3 (in words — three).

Then 13 (in other words — one three).

Then 1113 (one one and one three).

Then 3113 (three ones and one three).

Next 132113 (one three, two ones and one three).

So each number represents a kind of verbal description of the previous number.

Therefore the next number will look like:

one one, one three, one two, two ones, one three, i.e.: 1113122113