

CATEGORY C1 Problems 1-2-3-4-5-6-7-8-9-10

CATEGORY C2 Problems 1-2-3-4-5-6-7-8-9-10-11-12

CATEGORY L1 Problems 3-4-5-6-7-8-9-10-11-12-13-14

CATEGORY L2 Problems 5-6-7-8-9-10-11-12-13-14-15-16

CATEGORY GP and HC Problems

1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18

1. How Many 17s for Lavinia?

5843779853861278142872476575

In the sequence of numbers written above, by adding three adjacent digits together, Lavinia sometimes obtains a sum of 17.

How many times does Lavinia obtain sum of 17?

2. A Smart Division

5	4		
	1	2	
1		3	

Divide the square in the figure into six regions by outlining their borders. Each region must consist of 1 small square, 1 small square, 2 small squares, 3 small squares, 4 small squares, and 5 small squares. The division must ensure that the squares forming a region are contiguous by at least one side (the region must not have "gaps" in between). In the figure, the number of squares in each region is written inside one of the squares of that region.

3. An Addition in Disguise

$$* \blacklozenge + * \blacklozenge + * \blacklozenge + \blacklozenge * + \blacklozenge * + \blacklozenge * = \bigcirc \bigcirc$$

In the addition shown above, each symbol consistently represents the same digit, and different symbols correspond to different digits. Additionally, no number starts with 0.

4. It Must Be True

Complete the sentence in the box below with numbers (written in digits) so that the statement in the box becomes true.

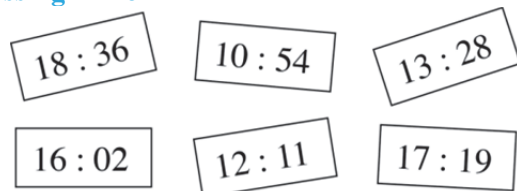
In this box, there are counted:

... numbers

... even number(s)

... odd number(s)

5. Missing Time



In each of the rectangles in the figure, you can see the time (hours and then minutes) when Jacopo sent messages to his friends. The time interval between each message remains the same, but one rectangular note with a message time has been lost.

What is the missing time?

6. Carla's Number

Carla wrote a three-digit number with digits arranged in ascending order from left to right. If she adds 1 to this number, the sum of the digits of the new number becomes three times smaller than the sum of the digits of the original number.

What was the number Carla originally wrote?
(No number starts with the digit 0)

7. Milena's Cube

Milena assembled 27 small cubes to form a large cube, which she then painted blue (as shown in the figure). However, she was not satisfied with the aesthetic result. She disassembled the large cube and rearranged the small cubes in a way that minimizes the number of visible blue faces.

How many blue faces are visible on Milena's new cube?

