Read the problems carefully. You can solve the problems in any order. Record your solutions on the answer sheet.

Problem 1. It took Porcupine one week to remove all the ornaments from the Christmas tree. On Monday he removed 1 ornament, and on each of the following days he removed as many ornaments as on all prior days combined. He removed the last remaining ornaments on Sunday. How many ornaments were on the tree originally?

Problem 2. Boa (B), Chimp (C), Elephant (E) and Parrot (P) decided to weight themselves. Chimp recoded the results as following: Boa =48P, Elephant = 12C, Chimp = 3P, Boa = 4C, Elephant = 36P. Turned out she mixed up all the results –the numbers (or the coefficients) she recorded correctly, but she wrote down the wrong letters. Can you figure out what the Boa's, Elephant's and Chimp's weights are in Parrots?

Problem 3. Place the digits 0 to 9 into the squares below to make the equation true.

$$\boxed{} + \boxed{} \times \boxed{} - \boxed{} \div \boxed{} = \boxed{}$$
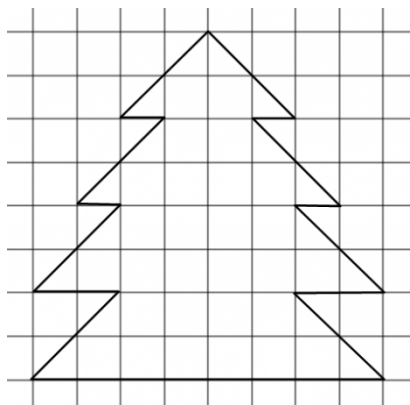

Problem 4. Take a look at the picture of the tree on the left (on the graph paper). Show how to cut it onto 4 parts that could be reassembled to make a square.

Problem 5. All the students in the class received 4 cards. PA, NA or MA was written on each card. It turns out that 13 children can make the word MAMA from their cards, 15 children can make the word PAPA, 17 children – the word NANA. At the same time 45 students can make the word PANAMA. What is the total number of children?

Problem 6. A rectangle (similar to the one shown on the picture) was made out of square cards. Then some of the cards were removed and as a result, one side is now two times smaller, and the other is three times smaller. The number of the cards removed is 65. How many squares with the side of 4 cards did the original rectangle contain? (For example, on the picture given, you can find two squares with the side of 2 cards).
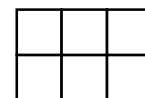
Problem 7. There are 9 cities in the Moonlight kingdom and they are placed as shown in the picture. The King wants to build straight roads between the cities such that there are exactly 4 roads exiting each of the cities, and they never intersect again. Can he do it? Show it on the picture.
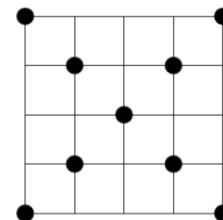
Problem 8. If a bardgie tells the truth it becomes green. If it lies it turns red. One day two of them met.
The first one said: We are both red.
The second one replied: If we'd both remained silent, we would both still be red.
Are they the same color after the second one spoke?