MATH KANGAROO Practice Problems

1. Ela came to Anna's birthday 5 minutes earlier than Stan but 3 minutes later than Iwona. Iwona left first. She left 2 minutes earlier than Stan and 5 minutes earlier than Ela. How many minutes longer was Ela at the party than Stan?
2. If the red dragon had 6 heads more than the green dragon, then both dragons would together have 34 heads. In reality, the red dragon has 6 heads less than the green dragon. How many heads does the red dragon have?
3. A certain hotel has 5 floors. There are 45 rooms on each floor. Each of the room is numbered with a three-digit number. The first digit indicates the floor number, and the remaining two digits form the room number on the given floor. The rooms on each floor are numbered in order. For example, all the rooms on the third floor are numbered from 301 to 335. How many times was the digit 2 used in numbering all the rooms in this hotel?
4. In the land of Funnyfeet, the left foot of each person is either one or two sizes bigger than his or her right foot. However, shoes are always sold in pairs of the same size, and only in whole sizes. A group of friends decided to buy shoes, and to save money they bought shoes together. After they all put on the shoes that fit them, there were exactly two shoes left over, one of size 36 and another of size 45. What is the smallest possible number of people in the group?
5. The equilateral triangle, the rectangle and the square which make up the figure shown in the picture below all have perimeters which are equal. The length of one side of the square is 9cm. What is the length of the shorter side of the rectangle?

9 cm
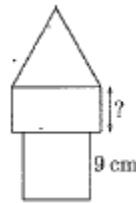
6. How many positive whole numbers n have the property that $n+2$ is a divisor of 78?
7. Together, Adam, Bartek and Czarek earned 280 zloty during their vacation. Adam made twice as much money as Bartek and four times as much money as Czarek. How many zloty did Czarek earn?
8. Ania has 9 crayons in a box. At least one of them is blue. At least two of every 4 crayons are of the same color and at most three out of every 5 crayons are of the same color. How many blue crayons are in this box?
9. John made a building out of cubes. In the picture below, you see this building from above. In each cell you see the number of cubes in that particular tower. When you look from the front what do you see. Draw a picture.

BACK

4	2	3	2
3	3	1	2
2	1	3	1
1	2	1	2

FRONT

10. You count from 1 to 100 and you clap when you say the multiples of the number 3 and when you say numbers that are not multiples of the number 3, and when you say numbers that are not multiples of 3 but have 3 as the last digit. How many times will you clap your hands?

11. Jane multiplied the product of 18 factors, each equal to 8, by the product of 50 factors, each equal to 5. How many digits does her final product have?

12. Find the number of pairs of two-digit natural numbers whose difference is equal to 50.

13. What is the greatest value of the sum of the digits of the number made from the sum of the digits of a three-digit number?

14. Today the date is 3.20.2003 and the time is 20:03 (8:03PM). What will be the date after 2003 minutes?

15. The body of a certain caterpillar is made up of five spherical pats, 3 of which are yellow and 2 are green. What is the greatest possible number of different types of this caterpillar that could exist?

16. We have 3 boxes: one red, one green, one blue. We also have 3 objects: a coin, a shell, and a bead. In each of the boxes there is only one of these objects. We know that:
    - The green box is to the left of the blue box;
    - The coin is to the left of the bead;
    - The red box is to the right of the shell; and
    - The bead is to the right of the red box.

    In which box is the coin?