More Math Kangaroo Problems!*

<center>March 7, 2013</center>

1. Karl is now 10 years old, and Ala is 3 years old. How many years from now will Karl be twice as old as Ala?

2. A pail filled with milk to the top weighs 25 kg, and a pail filled half-way weighs 13 kg. How much does an empty pail weigh?

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*The problems from this worksheet are from various years of Math Kangaroo over the last decade.

3. In Grandma's pantry, there is a jar with 650 g of jam. Each day her grandson Tom eats 5 teaspoons of jam from the jar. Each teaspoon holds 6 g of jam. How much jam will be left in the jar after 20 days?

4. What is the least possible number of children in the Kowalski family if each of the children has at least one brother and at least one sister?

5. Joanna baked some cookies. She tried to divide them evenly first between 2 plates, then between 3 plates, and finally between 4 plates. Each time she had on cookie left over. What is the smallest number of cookies Joanna baked?

   Can you find another solution?

6. On Monday morning, a snail fell down a well which is 5 meters deep. During the day, it climbs up 2 meters, and during the night it slides down 1 meter. On what day of the week will the snail get out of the well?

7. How many three-digit numbers are there that have the sum of their digits equal to 5, but do not repeat digits? (For example, 230 is such a number, because $2 + 3 + 0 = 5$, but 122 does NOT work since 2 repeats.)

8. In a certain quiz show there are the following rules: every participant has 10 points at the beginning and has to answer 10 questions. For each correct answer, the participant earns 1 point, and for each incorrect answer, the participant loses 1 point. Mrs. Smith had 14 points at the end of this quiz show. How many correct answers did she give?

9. Paul, Darius, Micah and Jeff met at a concert in Chicago, but they came from different cities: Pittsburgh, Dallas, New York and Washington. We know that:

-Paul and the boy from Washington met in Chicago early in the morning on the day of the concert. They had never been to Pittsburgh or to New York.

-Micah is not from Washington, and he came to Chicago later than the boy from Pittsburgh.

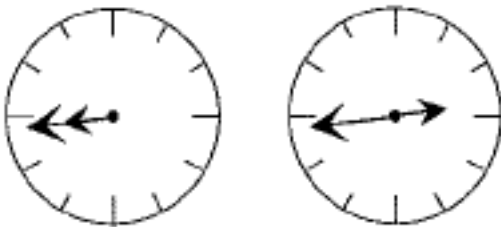-Jeff likes the concert more than the boy from Pittsburgh did.

What city is each boy from?

10. A certain dance group starts out with 25 boys and 19 girls. Every week 2 more boys and 3 more girls join the dance group. After how many weeks will there be the same number of boys and girls in the dance group?

11. A certain vase contains four flowers: one red, one blue, one yellow, and one white. Maia the Bee sat on every flower in the bouquet only once. She started with the red flower, and she did not fly directly from the yellow flower to the white flower. In how many ways could Maia sit on all the flowers? First list all the combinations.

12. A kangaroo noticed that each winter he gains 5 kilograms of weight, and each summer he loses 4 kilograms. During the spring and fall, his weight does not change. In the Spring of 2008 he weighed 100 kilograms. How much did he weigh in the Fall of 2004?

13. When Marysia was leaving home between 8 and 9 in the morning, she noticed that the hour hand and the minute hand on her watch were overlapping. When she returned home between 2 and 3 in the afternoon the hour hand and the minute hand formed a straight line (see the picture). How long was Marysia away from home?

14. Three identical dice are place one on top of the other (see the picture). The sides which touch each other have the same numbers on them. What is the number on the bottom of the lowest die?