Finishing the Journey of Word Problems*

March 1, 2013

1. Jane was supposed to multiply a given number by 2 and then add 2. Instead, she added 2, and then added 2 again. Surprisingly, she got the right answer. What number did she start with?

2. Students walked to the museum in rows of three. Adam, Barbara, and Zara noticed that they were the seventh row from the front and the fifth row from the back. How many students went to the museum?

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*The word problems from this worksheet are revised Math Kangaroo problems from previous years.

3. A magical ball falling to the ground bounces twice as high as the height from which it was dropped, however on the second bounce it only reaches a quarter of a height from its first bounce.

   (a) If it was dropped from a height of 8 ft, how high did it rise on the first bounce?

   (b) How high did the ball rise after the second bounce?

4. I divided 20 pieces of candy among several children. Each child received at least one piece of candy, and everyone received a different number of pieces of candy. What is the greatest possible number of children that received candy?

5. Ela and Kasia boarded a super-train. Ela took a seat in the seventeenth car counting from the front of the train, and Kasia was seated in the thirty-fourth car counting from the end. The girls were sitting in the same car. How many cars did the super-train have?

6. 12 boys and 8 girls were members of the Math Club. Every week new members were admitted: 1 boy and 2 girls. How many members will this club have when the number of boys equals the number of girls?

7. Teddy has as much money as Walter and Carlos have together. Walter has 10 dollars less than Carlos. The three boys have 40 dollars altogether. How much money does Walter have?

8. Girls and boys from Maria's and Gregory's class formed a line. There are 16 students on Maria's right, and Gregory is among them. There are 14 students on Gregory's left, and Maria is among them. There are 7 students between Maria and Gregory. How many students are in this class?

9. Dave accidentally left some of his books in the living room near his dog. In the morning his dog had managed to tear out 30 pages (pages 1-30) from his favorite science fiction novel.

   (a) How many digits were used to number the torn pages? (Remember, pages 1-30 were ripped out).

   (b) Dave is also in the process of finishing a book he wrote. He wants your help to number the pages. He will only tell you that 91 digits were used to number all the pages in his book (starting on page 1). How many pages are there?

10. Sarah wanted her brother to guess her number. She said that the following two operations performed on her number give the same result:

    *take the number, multiply it by 2 and add 2;

    * take the number, multiply it by 3 and subtract 1;

    Can you help Sarah's brother to figure out what her number is?

    Are there any other numbers that satisfy this property?

11. Two teams are playing against each other in a tournament. There are no ties. The first team to win 4 times wins the tournament. What is the largest number games that can take place until one of the teams wins the tournament?

12. If Martha gives each of her children 3 apples, she has 1 apple left. However, she would need to have 2 more apples to be able to give every child 4 apples. How many children does Martha have?