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9th School Olympiad of Lithuania for youngsters 2007
associated with the 22nd Lithuanian team-contest
Grades 5 and 6

Department for Mathematics and Informatics of Vilnius University
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1. On the 29th of September 2007 Winnie-the-Pooh attended an open Baron Munchhausen Olympiad in Dunties in which he was expected to solve 20 problems. For each correct solution he was awarded 8 points, whereas 5 points were deducted for an incorrect answer. No points were given or subtracted for the problems Winnie left unsolved. In the end, Winnie-the-Pooh received 13 points. Can you ever deduce how many problems he solved?

2. Baron Munchhausen regards a 2-digit integer to be *of exceptional importance* in the case when that integer is got adding to the product of its digits the double sum of them and only then. For example, Baron doesn't regard the number 49 to be *of exceptional importance* because

$$49 \neq 4 \cdot 9 + (4 + 9) + (4 + 9) = 36 + 13 + 13 = 49 + 13 = 62.$$

- (i) Indicate at least one 2-digit integer *of exceptional importance*;
- (ii) Find some two 2-digit integers *of exceptional importance*;
- (iii) Find all such 2-digit integers *of exceptional importance*.

3. Baron Munchhausen accepts the square 3×3 to be *magic*, if the sum in the numbers in each row, column and in each of the main 2 diagonals is the same. Winnie-the-Pooh knows that the square is *magic* but he is not so sure how he could indicate an exact value of x . Help Winnie-the-Pooh to indicate x .

		3
x	4	5

4. The only son of Baron Munchhausen Stanley has 2 lorries of different *capacity*. Using the first lorry 3 and the second lorry 4 times Stanley is able to transportate less than 30 tons of goods and using the first lorry 5 and second one 9 times Stanley is able to transportate more than 60 tons of goods.

Which of Stanley's lorries is of greater *capacity* and why?

5. Baron Munchhausen claims that it is quite easy to divide each of two figures shown in the picture into 4 equal parts. Is Baron right?

