

Logic and Arithmetic. Other Homework problems

Tanya Khovanova

October 27, 2008

— Do you know that 67% of people are not capable of doing simple arithmetic?

— I belong to the other 23%.

Finish the problems from the class handout.

Play speedmath (<http://web.cs.wpi.edu/~mikesp/speedmath/speedmath.swf>) until you can solve all the problems before the time runs out or, even better, until you get 3,000 points.

Competition practice

Exercise 1. 1999 AMC 8, Problem 1. $(6 ? 3) + 4 - (2 - 1) = 5$. By what operation the question mark should be replaced with?

Exercise 2. 2007 AMC 8, Problem 7. The average age of 5 people in a room is 30 years. An 18-year-old person leaves the room. What is the average age of the four remaining people?

Exercise 3.

$$\left(\frac{7/9 - 47/72}{1.25} + \frac{6/7 - 17/28}{0.358 - 0.108} \right) \times 1.6 - \frac{19}{25}$$

Exercise 4. 2002 AMC 10A, Problem 6. Cindy was asked by her teacher to subtract 3 from a certain number and then divide the result by 9. Instead, she subtracted 9 and then divided the result by 3, giving an answer of 43. What would her answer have been had she worked the problem correctly?

Challenge Problems

Exercise 5. Einstein's Puzzle. Variations of this riddle appear on the net from time to time. It is sometimes attributed to Albert Einstein and it is claimed that 98% of the people are incapable of solving it. Some commentators suggest that Einstein created such puzzles not to test out intelligence but to get rid of all the students who wanted him as an advisor. It is not likely that there is any truth to these stories. Wherever this comes from, it is a nice riddle.

Let us assume that there are five houses of different colors next to each other on the same road. In each house lives a man of a different nationality. Every man has his favorite drink, his favorite brand of cigarettes, and keeps pets of a particular kind.

1. The Englishman lives in the red house.
2. The Swede keeps dogs.
3. The Dane drinks tea.
4. The green house is just to the left of the white one.
5. The owner of the green house drinks coffee.
6. The Pall Mall smoker keeps birds.
7. The owner of the yellow house smokes Dunhills.
8. The man in the center house drinks milk.
9. The Norwegian lives in the first house.
10. The Blend smoker has a neighbor who keeps cats.
11. The man who smokes Blue Masters drinks bier.
12. The man who keeps horses lives next to the Dunhill smoker.
13. The German smokes Prince.
14. The Norwegian lives next to the blue house.
15. The Blend smoker has a neighbor who drinks water.

The question to be answered is: Who keeps fish?