I intend to discuss the first of these problems during the summer school. The other two are background problems that address similar issues. I used them in a Methods Course for Secondary Mathematics Teachers.

1. I went to the store and bought the same number of books as records. Books cost $2 each and records cost $6 each. I spent $40 all together. Assuming the equation $2B + 6R = 40$ is correct, what is wrong, if anything, with the following reasoning. Be as detailed as possible.

$$2B + 6R = 40$$

Since $B = R$, I can write:

$$2B + 6B = 40$$

$$8B = 40$$

The last equation says 8 books is equal to $40. So one book costs $5.
2. Write an equation using the variables S and P to represent the following statement.

At a certain university there are six times as many students as professors.

A. In the equation $S = 6P$, what does the letter P stand for?
   1. Professors
   2. Professor
   3. Number of professors
   4. None of the above
   5. More than one of the above
   6. Don’t know

B. What does the letter S stand for?
   1. Professor
   2. Student
   3. Students
   4. Number of students
   5. None of the above
   6. More than one of the above
   7. Don’t know

3. Write an equation that can be used calculate the number of feet in a measurement given the number of yards. Use the letters ‘F’ for the number of feet and ‘Y’ for the number of yards.