Quiz 2A, MTH 2010 - No Calculators

Dr. Graham-Squire, Fall 2014

Name: _____

1. (1 point) Can the question below be solved by calculating $\frac{1}{4} + \frac{1}{7}$? Explain why or why not:
   $\frac{1}{4}$ of the land in Guilford County is covered with forest. $\frac{1}{7}$ of the adjacent county (Alamance) is covered with forest. What fraction of the land in the two-county Guilford-Alamance region is covered with forest?

2. (1 point) Calculate $8\frac{1}{5} - 5\frac{1}{3}$. Write your answer as a mixed number.

3. (2 points) Bob and Janice want to calculate 343-98 by first calculating $343 - 100 = 243$. Bob says that they must now *subtract* 2 from 243, but Janice says that they must *add* 2 to 243. Who is right? Use either a diagram, number line, or mathematical notation to help explain who is right and why.

4. (3 points) In January 2014, the national debt was about 17 trillion dollars and the US population was about 300 million people. Someone reading these figures estimated that the national debt was about $6,000 per person. Which of these statements best describes the reasonableness of this estimate? Show your work!

   (a) It is too low by a factor of 10

   (b) It is too low by a factor of 100

   (c) It is too high by a factor of 10

   (d) It is too high by a factor of 100

5. (2 points) A bag contains 11 marbles, each a different color. Suppose you reach into the bag and pick out a pair of marbles (and then put the marbles back in the bag). How many different pairs of marbles can you get this way? Note that getting the blue marble and the green marble is the same as getting the green marble and the blue marble (that is, order does not matter).

6. (1 point) Describe a way of doing the multiplication 6×98 that makes it easier to do mentally (cannot use the standard multiplication algorithm).