

## MATH 221 - STUDY GUIDE FOR TEST 3

**General Guidelines for Studying:** The test will be 25 multiple choice questions, of which 13 will be based on the 8 regular quiz questions you had for this material and 5 of the first 6 questions from the Millionaire Game quiz. These 13 test questions may not be identical to the quiz questions, but they will be very similar. If you understand not only what the answer was on a quiz problem but also why the answer was what it was, then you should have no problem on the corresponding test question. The remaining 12 questions on the test were obtained by the instructor by going through the class presentations available directly at:

<http://www.math.sc.edu/~filaseta/courses/Math221/the221password.html>

It would be wise to review the material, especially any questions posed, that appear in these presentations. This includes all of the homework problems that we went over in class.

### Specific Items to Know:

- modulo problems like on the homework from Section 4-6 (and Quiz 12)
- models (there were lots of them) associated with fractions (representations for fractions, addition of rationals, multiplication of rationals, division of rationals, representations for decimals)
- terminology (numerator, denominator, proper fraction, improper fraction, mixed fraction, equivalent fractions, equal fractions, simplest form, relatively prime, decimals and how to read them, terminating decimal)
- comparing rational numbers (recognize equal rational numbers and be able to tell if one rational number is greater than another, whether positive or negative)
- multiplication and “of”
- $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$  and  $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$
- $a \div b$  is the number of  $b$ 's it takes to get  $a$
- word problems like the homework
- decimals in expanded form (going from one to the other)
- converting from decimals to fractions and from fractions to decimals
- comparing decimals (be able to tell if one is greater than another, whether positive or negative)
- operations on decimals (where does the decimal go for adding, multiplying and dividing?)
- know what rational numbers can be written as a terminating decimal

### Some specific items that you do not need to review even if they are fun to look at:

- Fundamental Law of Fractions (know it but not its name)
- Denseness property of rationals
- Paul Chaplin's card trick
- Venus and the number of days in a year
- lengths of periodic parts of decimal representations for  $1/n$