Math 141 Outline for topics on Test III

Chapter 6 Fractions

Section 1 Basic meaning of a fraction using sets. When are two fractions equivalent? Compare size of fractions. Find a fraction between two other fractions.

Section 2 Addition and subtraction of fractions using LCM to find the common denominator. **Mental math** and **estimation** in addition and subtraction of fractions.

Section 3 Multiplication and division of fractions.
Be able to **illustrate** multiplication with a diagram; shown in the beginning of section 6.3.
Know the **properties** for addition and multiplication of fractions: Closure, Commutative, Associative, Identity, and Distributive. New property is existence of multiplicative inverses.
Mental math and **estimation** in multiplication and division of fractions.
Online – Be sure to read the journal article and watch the video clips:
http://www.sci.sdsu.edu/CRMSE/IMAP/pubs/Reflections_on_Fractions.pdf

Chapter 7 Decimals, Ratio, Proportion, and Percent

Section 1 Basic meaning of decimals using expanded notation.
Theorem about when a fraction will be a decimal that terminates; based on the prime factors of the denominator of the simplified fraction.
Mental Math using properties, compatible numbers, compensation, & fraction equivalents.
Estimation using front-end techniques (range, one-column with adjustment), rounding, compatible #s, and fraction equivalents. See examples in textbook.
Study worksheet 7.1 in module 7 in the Blackboard Course, Learning Module 7.

Section 2 Written algorithms for +, -, x, and ÷ of decimal numbers. Concentrate on how the use of fractions can help in understanding the rules for arithmetic of decimal numbers.
Theorem about when a fraction will be an infinite repeating decimal.
Study worksheet 7.1-7.2 in Learning Module 7 in Blackboard.
Equation method for changing an infinite repeating decimal into its equivalent fractional form. Scientific notation problems Set A # 5-11.

Section 3 A proportion is two equal ratios and uses the concepts of equivalent fractions.
"Scaling up or scaling down" is used for simple problems.
Solve a proportion using cross multiplication for more complex problems.
Be able to do a word problem using proportions. It helps to describe each ratio in the proportion using words.

Section 4 Be able to convert between equivalent fractions, decimals, & percents.
Mental math and **estimation** with percents. See examples in textbook.
Be able to do a word problem using percents, solving it with a simple algebraic equation, a proportion & show "gauge diagram", see examples in the text in section 7.4.

Chapter 8 Integers

Section 1 Addition & subtraction of integers. Be able to illustrate with sets and number line.

Section 2 Multiplication and division of integers. Be able to illustrate with sets, number line, and number patterns. Negative exponents & scientific notation, do problems in 8.2 Set A # 12-20.

Review your notes and quizzes.
Practice the concepts by doing problems from the chapter reviews and do the chapter tests as though they are practice tests.

Math 141 **Outline for Final Exam**

The final exam is cumulative and will thus be a summary of the major concepts in the course.
So in addition to using the outlines above, think about how the concepts are connected. For example, in reviewing mental math and estimation, think about the general principles and techniques as they would be applied to all the types of numbers we have used; whole numbers, integers, fractions, %, & decimals.
Chapter 9 is a summary of many of the properties that we have studied in chapter 3 with whole numbers, in chapter 6 with elementary fractions, in chapter 7 with decimals, in chapter 8 with integers and finally in chapter 9 with rational and irrational numbers. For example, consider the concept of closure and which of the sets are closed for subtraction, or division and why.

Chapter 9 Rational, irrational, and real numbers

Section 1 Definition and summary of properties of rational numbers. Be able to define and give examples of rational numbers, including whole numbers and integers.

Section 2 Definition and summary of properties of irrational and real numbers. Be able to define and give examples of irrational numbers. Irrational numbers cannot be written as the ratio of two integers.
As decimals, irrational numbers will be infinite and non-repeating.
Be able to draw a Venn diagram that shows the relationships between the sets of numbers we studied in chapters 3-9.
Also includes understanding rational exponents, solving equations and inequalities.

Review by using the "Review for Final Exam" that is posted online by the test outlines.
Also review by redoing problems from all the quizzes and tests from this semester.