MATH 101 **STUDY GUIDE** **TEST 3 Spring 2014**

For spring semester 2014 your test will cover only sections 1, 2, 3, and 5 of chapter 2 and the extended syllabus problems, particularly numbers 54, 58, 59 and 60.

1. Know and be able to use set theory notation including $\cap$, $\cup$, $\in$, $\subset$, $\subseteq$, etc.
2. Be able to use set-builder notation.
3. Be able to shade Venn Diagrams to represent such things as $A \cap B'$ and other similar expressions.
4. Given a filled Venn Diagram and an expression such as $A \cap B'$, be able to find the elements of the expression.
5. Be able to read a Venn Diagram and take information from it.
6. Be able to solve word problems using Venn Diagrams.
7. Given a universal set and other sets within the universe, be able to construct a Venn Diagram representing the information.
8. Be able to work with factorial notation.
9. Be able to use the Fundamental Principle of Counting.
10. Be able to find one-to-one correspondences between sets.
11. Be able to show whether or not two sets are equivalent (i.e. have the same cardinality).
12. Be able to state, word for word, Cantor's definition of an infinite set.
13. Be able to use Cantor's definition of an infinite set to prove a set infinite or finite.
14. Be able to solve problems such as those given in the extended syllabus (especially problems like the telephone problem).