Day 11: Tuesday, 2/21/2017

Start of class

1. Hand back homework and quiz problem comments
2. Reminder about exam on Friday
3. I will bring a sheet showing all hw completed by students so far. Assignments that have not been handed in should be put into a portfolio and submitted for review during the exam. This will allow me to update my records on who has completed what homework.
4. Take any questions anyone wishes to ask.

Discussion topic 1: Proof outlines
This is a power point presentation that will be covered in class and posted on line

Discussion topic 2: DeMorgan's Laws for indexed collections of sets.

1. Statement of both laws
2. Proof of (part of) one.

Theorem 5.30. *Let Λ be a nonempty indexing set and let $\mathcal{A} = \{A_\alpha \mid \alpha \in \Lambda\}$ be an indexed family of sets. Then*

$$3.\ \left(\bigcap_{\alpha\in\Lambda} A_\alpha\right)^c = \bigcup_{\alpha\in\Lambda} A_\alpha^c$$

$$4.\ \left(\bigcup_{\alpha\in\Lambda} A_\alpha\right)^c = \bigcap_{\alpha\in\Lambda} A_\alpha^c$$

Discussion Topic 3: Disjoint and pairwise disjoint collections of sets.

1. If the intersection of a collection of sets is empty, the collection is said to be disjoint.
2. If *any* two sets in the collection are disjoint, then the collection is said to be pairwise disjoint.
3. Example: Let the universal set be $\mathbb{R}$; and define $C_n = (n, \infty)$ for every $n \in \mathbb{N}$. Let $\mathcal{C} = \{C_n \mid n \in \mathbb{N}\}$. Is $\mathcal{C}$ a disjoint family? Pairwise disjoint family?

End of Day