Proofs involving sets

- Read carefully pages 108 through 111 (section 4.4)
- Some key questions to answer (try these without looking at the book, but after you've read the book):

  1. How do we prove two sets are equal?
  2. Prove that for sets A, B we have $A \setminus B = A \cap \bar{B}$.
  3. Prove that for sets A, B we have $(A \cup B) \setminus (A \cap B) = (A \setminus B) \cup (B \setminus A)$.
  4. Prove that for sets A, B, C if $A \subseteq B$ and $B \subseteq C$ then $A \subseteq C$.
  5. Prove that for sets A, B we have $A \cup B = A$ if and only if $B \subseteq A$. Also devise a different proof of the forward direction, by using that $B \subseteq A \cup B$.

- Practice problems from section 4.4 (page 116): 4.42, 4.43, 4.45, 4.46, 4.49