CSE311 Quiz Section: April 12, 2012

1. (Section 2.22, Exercise 12-13, 7th Edition) Prove the following (these are called absorption laws):

   
   \[ (a) \quad A \cup (A \cap B) = A \]
   
   \[ (b) \quad A \cap (A \cup B) = A \]

2. (Section 2.1, Exercise 9, 7th Edition, modified slightly) Determine which of these statements are true and which false

   (a) \( 0 \in \emptyset \)
   
   (b) \( \emptyset \in \{0\} \)
   
   (c) \( \{0\} \subseteq \emptyset \)
   
   (d) \( \emptyset \subseteq \{0\} \)
   
   (e) \( \{0\} \in \{0\} \)
   
   (f) \( \{0\} \subseteq \{0\} \)
   
   (g) \( \{\emptyset\} \subseteq \{\emptyset\} \)

3. (Section 2.2, Exercise 29, 7th Edition) What can you say about the sets \( A \) and \( B \) if we know that:

   (a) \( A \cup B = A \)
   
   (b) \( A \cap B = A \)
   
   (c) \( A - B = A \)
   
   (d) \( A \cap B = B \cap A \)
   
   (e) \( A - B = B - A \)