Foundations of Mathematics — Math 300 Sections 902, 905

Tuesday 13 October 2020 — Concept Quiz

Answers to Concept Quiz 5.2/3

1. **Set operations.** Let A and B be subsets of a universal set U. Which of the following are equal to $A - B^c$?

   - × $B^c \cap A$.
   - ✓ $A \cap B$.
   - × $(A \cup B) - (A \cap B)$.
   - × $B^c - A$.
   - × $A \cup (B - A)$
   - ✓ $A - (A - B)$
   - × $A^c \cap B^c$

2. **Set operations.** Let A and B be subsets of a universal set U. Which of the following are equal to $(A \cup B)^c$?

   - × $B^c \cap A$.
   - × $A \cap B$.
   - × $(A \cup B) - (A \cap B)$.
   - ✓ $B^c - A$.
   - × $A \cup (B - A)$
   - × $A - (A - B)$
   - ✓ $A^c \cap B^c$

3. **Definition of disjoint.** Let A and B be sets. Give a definition of the following notion: "A and B are disjoint." Use complete sentences, please.

   The sets A and B are *disjoint* when $A \cap B = \emptyset$.