Math 215 – Fall 2017

Practice Homework 12 – Assigned October 26th, due October 30th

Note: Remember that you must show your work to get full credit for a problem.

1. Let the set $\mathcal{U}$ be the universe.

   Prove for any sets A and B, that

   $$\overline{A \cap B} = \overline{A} \cup \overline{B}.$$

2. Let the set $\mathcal{U}$ be the universe.

   Prove for any sets A and B, that $A \subseteq B$ if and only if $\overline{A} \cup B = \mathcal{U}$.

3. Prove for any sets A and B, that

   $$\mathcal{P}(A \cap B) = \mathcal{P}(A) \cap \mathcal{P}(B).$$

4. Prove that for any sets A, B, and C that

   $$(A \cap B) \cup C = (A \cup C) \cap (B \cup C).$$