MA1971   **Name:**

Quiz 2   **D Term, 2013**

Show all work needed to reach your answers.

1. (4 points) Suppose $S = (1,3] \cup [4,5)$. What is $S_{\mathbb{R}}^{\mathcal{C}}$?

$$S_{\mathbb{R}}^{\mathcal{C}} = \underline{\hspace{5cm}}$$

2. (4 points) If X and Y are disjoint sets, what is $X \cap Y$?

$$X \cap Y = \underline{\hspace{5cm}}$$

3. (6 points) Please prove the following: If A and B are sets, then $A \subseteq B$ iff $\mathcal{P}(A) \subseteq \mathcal{P}(B)$

4. (6 points) Please prove the following: If A and B are sets contained in some universe U, then

$$A^{\mathcal{C}} \cup B \subseteq (A \cap B^{\mathcal{C}})^{\mathcal{C}}$$