Homework # 1: Complex Analysis 1

1. Call a set $A \subseteq \mathbb{C}$ *closed* if $\mathbb{C} \setminus A$ is open. Show that A is closed if and only if $z_n \in A$, $z_n \to z$ (with $z \in \mathbb{C}$) implies that $z \in A$.

2. Suppose that $K_1 \supseteq K_2 \supseteq K_3 \supseteq \ldots$ is a decreasing sequence of non-empty compact sets $K_n \subseteq \mathbb{C}$. Show that then $\bigcap_{n \geq 1} K_n \neq \emptyset$.

3. Problems 1.6.4, 5, 6, 7.

"due:" 9/2