

Assignment 6

1. Prove $A^\circ = \bigcup_{\substack{G \text{ open} \\ G \subset A}} G$

2. Prove $\bar{A} = \bigcap_{\substack{H \text{ closed} \\ H \supset A}} H$

3. Prove $(\bar{A})^c = (A^c)^\circ$

4. Prove $(A^\circ)^c = \overline{(A^c)}$

5. Prove l.u.b $A \in A$ if A is closed

6. Prove $\emptyset$, and $\mathbb{R}$ are the only subsets of $\mathbb{R}$ that are both open and closed.

7. Prove $a_n \rightarrow x$ and $|a_n - b_n| < 1/n$
 $\Rightarrow b_n \rightarrow x$.