1. (10 points) Suppose that $U$ is some universal set and that $A$ is a subset of $U$, that is, $A \subset U$. Using one or more of the axioms, please show that $A^c_U$ (the complement of $A$ in $U$) exists. Please cite the axiom(s) you use.

2. (10 points) Please show that $1 + 3 + 5 + \ldots + (2n - 1) = n^2$. 