1. Prove that a closed subspace of a reflexive space is reflexive. (*Hint*: Let X be reflexive and Y a closed subspace. If $\eta \in Y''$, consider the functional ξ on X' defined by $\xi(f) = \eta(f_{|Y})$, where $f_{|Y}$ is the restriction of f to Y. Use the fact that X is reflexive to represent ξ by a vector $x \in X$. Then use the Hahn-Banach theorem to show that x must in fact belong to Y.)