MAT 516 Spring 2011 hw 11
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1. Let $L : U \to U$ be a linear transformation. The *spectrum* $\mathcal{S}(L)$ of L is the set of eigenvalues of L. Show that $\mathcal{S}(L + \mu I) = \mathcal{S}(L) + \{\mu\}$ for all $\mu \in \mathbf{F}$.

2. Let $L : U \to U$ be a linear transformation. Recall that a subspace W of U is L-invariant if $L(W) \subseteq W$. Let μ be a scalar. Show that a subspace W of U is $(L + \mu I)$-invariant if and only if W is L-invariant.