Problem JV7.A. Let $F$ be a field, let $V$ be an $F$-vector space, and let $W \subseteq V$ be an $F$-subspace. Show that $(V/W)^* \simeq \text{ann}(W)$.

Problem JV7.B. Let $F$ be a field and let $V, W$ be $F$-vector spaces. [Try not to assume that $V, W$ are finite-dimensional.] Let $\phi \in \text{Hom}_F(V, W)$. Show that $\text{img}(\phi^*) = \text{ann}(\ker \phi)$.