Math 306, Linear Algebra II, Winter 2008
Problem Set 7, due Friday, March 14

From section 5.2: 3, 19, 23
From section 5.4: 4, 5, 8, 11, 23, 26, 27, 36
A few others:

1. Suppose that $V = \mathbb{R}^3$ and $\psi$ is the usual map from $V \rightarrow V^{**}$. Find explicit $\overline{v} \in V$ such that $\psi(\overline{v}) = f$ where $f \in V^{**}$ is such that $f(g) = g(1, 1, 2)f_1(1, 2, 2) + g(2, 2, 1)f_2(1, 2, 1)$ for $g \in V^*$ where $\{f_1, f_2, f_3\}$ are the dual basis to the standard basis of $V$.

2. Suppose that $V = \mathbb{R}^3$, $\beta$ is the standard basis of $V$, $\beta' = \{f_1, f_2, f_3\}$ is the dual basis of $\beta$, $\beta'' = \{g_1, g_2, g_3\}$ is the dual basis of $\beta'$, and $\psi$ is the usual map from $V \rightarrow V^{**}$. Find explicit $\overline{v} \in V$ such that $\psi(\overline{v}) = g_1 + 2g_3$.

At a minimum, questions 5.2:19, 5.4:23, 5.4:26, and special problem 1 will be graded. It is worth mentioning that there are many more interesting problems than those I am collecting. It is worth fiddling with them, though not writing them up to turn in.