1. Section 17.1: 1, 4, 7

2. Section 17.2: 2, 4, 5, 8, 9

3. Show that a bilinear form $\eta$ is anti-symmetric (and hence a 2-form) iff there is an anti-symmetric matrix $A$ such that $\eta(x, y) = xA y^T$ for all vectors $x$ and $y$.

4. Show that $\Lambda_k(V)$ (the set of all $k$ forms on an $n$-dimensional vector space $V$) is itself a vector space of dimension $\binom{n}{k}$, with a basis: $\{e_{i_1}^* \wedge e_{i_2}^* \ldots \wedge e_{i_k}^* : i_1 < i_2 < \ldots < i_k \}$. 