1. Do Exercise #4 on page 72.

2. Do Exercise #5 on page 72.

3. Show that taking the conductor (as defined on page 47) commutes with localization by a multiplicative subset: Let $A$, $K$, $L$, and $B$ be as in the “usual picture”, with $L$ assumed separable over $K$; let $\theta \in B$ be an element such that $L = K(\theta)$; let $S$ be a multiplicative subset of $A$ with $0 \notin S$; let $f$ be the conductor of $\theta$ in $B$ over $A$; and let $f_S$ be the conductor of $\theta$ in $S^{-1}B$ over $S^{-1}A$. Show that $f_S = S^{-1}f$.

4. Do Exercise #5 on page 52.