

MATH. 200C, HOMEWORK 4

Do the following questions from the textbook:

Sect. 14.3: # 6, 8, 9*

Sect. 14.4: # 4*, 5, 6

Sect. 13.6: # 8, 11*, 12*, 13, 14, 15, 16, 17

In addition, do the following problem:

(1) Suppose that K/F is a Galois extension and L_1 and L_2 are two intermediate fields. Show that L_1 is F -isomorphic to L_2 (i.e. there is an isomorphism which induces the identity map on F) iff there exists $g \in G = \text{Gal}(K/F)$ such that $gG_{L_1}g^{-1} = G_{L_2}$. Give an example in which L_1 and L_2 are abstractly isomorphic but not F -isomorphic.