

Assignment 6 Qual Problems

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1 Problem 1

1.1 Part (a)

Definition: A field extension L/F is said to be a *splitting field* of a polynomial $f(x)$ if L contains all roots of f and thus decomposes as

$$f(x) = \prod_{i=1}^n (x - \alpha_i)^{k_i} \in L[x]$$

where α_i are the distinct roots of f and k_i are the respective multiplicities.

1.2 Part (b)