

A Book of Abstract Algebra | (2nd Edition)

Chapter 31, Problem 2EJ

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Problem

In the following, let F be a subfield of \mathbb{C} . An injective homomorphism $h: F \rightarrow \mathbb{C}$ is called a *monomorphism*; it is obviously an isomorphism $F \rightarrow h(F)$.

Let $p(x)$ be irreducible in $F[x]$, and c a complex root of $p(x)$. Let $h: F \rightarrow \mathbb{C}$ be a monomorphism. If $\deg p(x) = n$, prove that there are exactly n monomorphisms $F(c) \rightarrow \mathbb{C}$ which are extensions of h .

Step-by-step solution

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