

Reading/Blogging Assignments

Come to class on

1. Monday having finished your take home
2. Wednesday having (re)read 4.2
3. Friday having read 4.3 up to the main theorem of Galois Theory
4. Monday having read the rest of 4.3

Problem Set 9, Due November 15

Feel free to do some experimentation via a computer algebra system to develop intuition for the problem.

1. Let K/k be an extension in \mathbb{C} , finite and of degree n . Then there are precisely n distinct k monomorphisms of K into the normal closure N of K/k and hence into any normal extension L of k containing K .
2. Find the normal closure N , the Galois groups, and the Galois groups of the normal closure for the following fields:
 - $\mathbb{Q}(\alpha)/\mathbb{Q}$ where α is the real fifth root of 3.
 - $\mathbb{Q}(\sqrt{2}, \sqrt{3})/\mathbb{Q}$
 - $\mathbb{Q}(\alpha, \sqrt{2})/\mathbb{Q}$ where α is the real cube root of 2.
3. Let $K = \mathbb{Q}(\zeta)$ where ζ is a primitive 5th root of 1. Find the Galois group G for K/k . Find a subgroup of G and find its fixed field.