Nepal Algebra Project(NAP)
Central Department of Mathematics
Tribhuvan University,Kirtipur,
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Fields and Galois Theory

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Summary of NAP:Module 4 - Lecture 6

Galois groups over $\mathbf{Q}$ of

- $\Phi_5 = X^4 + X^3 + X^2 + X + 1 : \quad C_4$

- $\Phi_8 = X^4 + 1 : \quad V_4$

- $X^4 - 2 : \quad D_4$

Transitive subgroups of $\mathfrak{S}_4$:

$$\mathfrak{S}_4, \quad \mathfrak{A}_4, \quad V_4, \quad D_4, \quad C_4.$$

Index of V_4 in each of them.
Resolvant.

Galois groups over $\mathbf{Q}$ of

- $X^4 + 4X + 2 : \quad \mathfrak{S}_4$

- $X^4 + 8X + 12 : \quad \mathfrak{A}_4.$

References: Garling p.115–117. Milne p. 49–51.