

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

Course Instructor: Prof. Michel Waldschmidt

Lecture 1

- Correction of the mid term exam
- Examples of reducible polynomials without a root in the field.
- A finite extension is algebraic, however there are algebraic extensions which are not finite.
- A cyclic subgroup may or may not be normal.
- If $f \in F[X]$ is a polynomial such that $f(\alpha) = 0$, this does not imply that f is the minimal polynomial of α over F .
- $[\mathbf{Q}(e^{2i\pi/n}) : \mathbf{Q}] = n - 1$ only when n is prime.
- In characteristic p , $X^{p^n} - X = X(X^{p^n-1} - 1)$ is not equal to $X(X - 1)^{p^n-1}$.
- The theorems of the course should be used, not proved again: an extension of degree n of the prime field \mathbf{F}_p has p^n elements. The results on constructible numbers should also be used, not reproved.