

Math 411

Field Theory

Ödev

November 18, 2000

Ali Negin

1. Let $E = \mathbf{Q}(\alpha)$ where α is the root of the equation $\alpha^3 + \alpha^2 + \alpha + 2 = 0$. Express the element $(\alpha - 1)^{-1}$ of E in the form $a\alpha^2 + b\alpha + c$ with $a, b, c \in \mathbf{Q}$.

2. Let $E = F(\alpha)$ where α is algebraic over F of odd degree. Show that $E = F(\alpha^2)$.