Mathematics 111

Spring 2007

Homework 6

1. Find all rational and Jordan canonical forms of a matrix in $M_5(\mathbb{C})$ having minimal polynomial $x^2(x-1)$. Be sure to give the corresponding invariants and the characteristic polynomial.

2. Show that any linear operator T on a finite dimensional vector space (over a field of characteristic not equal to 2) which satisfies $T^2 = I$ is diagonalizable. Give all possible Jordan forms for 4×4 matrices.