

Tan Dang

1 Problem 3

Since F is a field, $F[x]$ is a PID. Let $I = (g)$. Since $p \in (g)$, $g|p$. But p is irreducible, this means either g is unit, which contradicts the fact that I is proper ideal, or $p = g$, which implies $I = (p)$. QED.