Due: Wednesday, February 4, 2015 at 1 AM.

All numbered problems are from Dummit and Foote, Third Ed. All problems will be graded. Show all work to receive full credit.

Read sections: 9.1 thru 9.5 of the textbook.

• From section 8.3: problems 3, 6.

• From section 9.4: problems 11, 13.

• Let \( \mathbb{R}[x] \) the ring of polynomials in one variable with real coefficients. Prove that up to multiplication by a non-zero constant all irreducibles of \( \mathbb{R}[x] \) are either linear of the forms \( x - a \) or quadratic of the form \( x^2 + bx + c \) with \( 4c - b^2 > 0 \).

• From section 9.5: problems 1, 3.