Math 200b Winter 2012 Homework 8

Due 3/16/2012 by 5pm in homework box (now in basement)

All exercise numbers refer to Dummit and Foote, 3rd edition.

Reading assignment: 14.4, 14.5, 14.7. The final is Monday, March 19, 3-6pm in our usual room.

Assigned problems (all to be turned in)

Section 13.6: #4, 6

Section 14.3: #8, 9

(In the hint for #8, the element $\alpha$ is supposed to be a root of the polynomial $x^p - x - a$. The way I did this problem was to first show directly that $x^p - x - a$ is irreducible over $\mathbb{F}_p$ by finding all of its roots in terms of $\alpha$ and then showing that no proper factor of the polynomial has coefficients in $\mathbb{F}_p$. There may be other ways.)

Section 14.4: #6

Section 14.5: #3, 7, 12