Homework 1

Due Wednesday, April 10, at noon

Homework is due at noon on the following Wednesday. You are encouraged to work together with others, but you must write up the solutions on your own.

All numbered exercises are from Dummit and Foote, third edition.

1. (5pt) 13.1.5

2. (5pt) 13.1.8

3. (5pt) 13.2.3

4. (5pt) 13.2.13

5. (5pt) Let $m, n \geq 1$ be positive integers such that $\mathbb{F}_{p^n}/\mathbb{F}_{p^m}$ is an extension of finite fields. Show that $m \mid n$. (Here $\mathbb{F}_{p^k}$ represents a field with p^k elements.)