Homework 14 – due Monday, 05/12/08

Math 601

63. Let G be an abelian group of order g, and let $\widehat{G}$ be the set of irreducible characters of G.
(a) Show that $\widehat{G}$ is an abelian group which is (non-canonically) isomorphism to G.
(b) For $x \in G$ the mapping $\chi \mapsto \chi(x)$ is an irreducible character of $\widehat{G}$ and so an element of $\widehat{\widehat{G}}$. Show that the resulting map $G \to \widehat{\widehat{G}}$ is *injective*, hence a (canonical) isomorphism.

64. Dummit-Foote, 19.1, #3.

65. Dummit-Foote, 19.1, #6.

PRACTICE (do not hand in): Write out the character tables for D_8 and Q_8 (this is done in the book – give the details); Dummit-Foote, 19.1, #1, 2, 8, 10.