Homework 6

due November 13, 2001

(1) Dummit, Foote Section 5.2 Exercise 7 (page 168)
(2) Dummit, Foote Section 5.4 Exercise 11 (page 176)
(3) Dummit, Foote Section 5.4 Exercise 15 (page 176)
(4) If a group G is the direct product of its subgroups H, K, then $H \cong G/K$ and $K \cong G/H$.
(5) Every group of order 12,28,56, and 200 must contain a normal subgroup and hence is not simple.
(6) Let G be a group of odd order and H a normal subgroup of G with 3 elements. Show that H is central.
For which primes other than 3 does your argument work?