Math 8300 HW Assigned 9/16/06, Due 9/28/06

1. Suppose $|G| = p^m r$ where $(p, r) = 1$. Prove G has a subgroup of order p^m by using Cauchy's theorem and induction. Hint: Consider a p-subgroup of G of maximum possible order. Use Cauchy's theorem plus the theorem from class about normalizers of p-subgroups.

2. Page 147 #32.

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