Math 220S

Tentative Schedule, days 8 thru 10

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| Date | Read | Prepare for Discussion | Written Homework | Exam |
| Wed 5-11 | Finish Chap. 2 | TH 2.5.5, EX 2.5.6, PR 2.6.1; p.55 #8abc; Cantor Set | p.54 #4b\*\*, 4c\*\*, 4d, 5ab,  \*\*Typo in book! For 4b and 4c only, change "Q" to "Q+" (positive rationals) |  |
| Thu 5-12 | Section 3.1 & 3.2 | p.62 #3.2.2 thru 3.2.6 | Problem #1 below (proof outlines) |  |
| Fri 5-13 | none | Handout on induction | To be announced |  |

1. Outline a direct proof for each of the following theorems based on the *logical structure* of the theorem. If there is a standard form of argument for moving the outline further inward, in either direction, use it. Do not use any definitions or theorems, just logic rules.
   1. If *G* is a group and *a* is an element of *G*, then *a*\**a* = *a* implies *a* = *e*.
   2. If *S* is a subset of a group *G*, then *S* is a subgroup of *G* if and only if (*S* is nonempty, and whenever *a* and *b* are elements in *S*, then *a\*b*-1 is also in *S*).
   3. If *S* is a subgroup of *G*, then any two right cosets of *S* in *G* are either identical or disjoint.