

MA3825 Rings & Fields
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October 27, 2009

Algebra Assignment 0

DUE DATE: Friday, October 30, 2009, by 4:30pm in my office mail slot.

Please carefully read the presentation rules below. The problem statements begin at the bottom of the page, after the presentation rules.

BASIC RULES FOR MA3825 ASSIGNMENTS

- I) Each student must compose his/her assignments independently. However, rough work may be done in groups;
- II) Write legibly and use only one side of each sheet of paper; **Any paper submitted which is sloppy or uses two sides of a page will be returned immediately with no credit.**
- III) Show your work. Explain your answers using FULL SENTENCES;
- IV) No late assignments will be accepted for credit.

- 1. Exercise 8 on p22.
- 2. Exercise 14 on p22.
- 3. If R_1 and R_2 are equivalence relations on a set S , then $R_1 \cap R_2$ is also an equivalence relation on S .
- 4. Exercise 51 on p24. (I.e., prove parts 2-4 of Theorem 0.7.)
- 5. Given functions $\alpha : A \rightarrow B$ and $\beta : B \rightarrow C$, prove
 - (a) if $\beta\alpha$ is one-to-one, then α is one-to-one.
 - (b) if $\beta\alpha$ is onto, then β is onto.