MATH 1090.03D

Fall 2000

Date posted: Nov. 1, 2000

Due: **In the first tutorial immediately following the end of the CUPE strike**

Alternative Problem Set No. 3—On Chapter 3 and 4 of "GS". See also our "Web–Ch.1".

This problem set is an alternative set to the one collected today.

It is **ONLY FOR THOSE students who exercised their right of choice** not to cross the picket lines, and therefore did not attend classes during the strike.

Only **ONE** problem set #3 will be accepted. Please **ignore this problem set IF you have already handed in the original problem set #3.**

- Do the following problems from the text, Chapter 3.

For the following Chap.3-problems you *must* use the equational style of Chapter 3 of "GS".

3.36, 3.39, 3.40, 3.46, 3.54, 3.60, 3.68, 3.70, 3.71, 3.72.

Hint for the above. Ignore **ALL** hints!

- **In this exercise** use the Deduction Theorem and, if helpful, the "cut rule" as your central tools—but do *not* use the "Tautology Theorem" (Post's [completeness] theorem).

  Prove (where A, B, C are any given wffs):

  (1) $\vdash (A \Rightarrow B) \Rightarrow (A \vee C) \Rightarrow (B \vee C)$

  (2) $\vdash (A \Rightarrow B) \Rightarrow (C \Rightarrow A) \Rightarrow (C \Rightarrow A \vee B)$.

- In this exercise you *are* allowed to use Post's Tautology Theorem (and any other "valid" tools we have "built" in class, e.g., soundness, Deduction theorem, Cut rule, etc.).

For any A, B (wffs) do (1) below:

(1) **True or false, and WHY**?

$A \vee B \vdash A \wedge B$

(2) Also do, Ch. 4, p.80, 4.1, 4.2, 4.7.