Problem Set 2

Name: _____

Due by **10:30 a.m. on Monday 7 August**. Lateness penalties (as specified on the syllabus) will apply to submissions after that time, unless you supply documentation of an illness or family emergency.

Please either write neatly in dark ink (not pencil) or type.
If you type:

- You will get an exciting stamp of thanks. (It won't say "Thanks". It will be much more exciting.)
- You are welcome to submit your work via e-mail as a PDF.

You may not discuss these questions with anyone else. The work you submit must be your own.

Proofs:

Do the following proofs using the rules from **ONLY** sections 7.3 and 7.4 (i.e. Conjunction, Simplification, Modus Ponens, Disjunctive Syllogism, Addition, Modus Tollens, Hypothetical Syllogism, and Constructive Dilemma). 10 pts each.

a. $\{(B \vee F) \supset (A \supset G), (B \vee E) \supset (G \supset K), B \bullet \sim H\} \vdash A \supset K$

b. $\{(\sim A \vee D) \supset (B \supset F), (B \vee C) \supset (A \supset E), A \vee B, \sim A\} \vdash E \vee F$

c. $\{(\sim S \vee B) \supset (S \vee K), (K \vee \sim D) \supset (H \supset S), \sim S \bullet W\} \vdash \sim H$

Proofs

Do the following proofs using the rules from **ONLY** sections 7.3, 7.4, and 7.5 (i.e. Conjunction, Simplification, Modus Ponens, Disjunctive Syllogism, Addition, Modus Tollens, Hypothetical Syllogism, Constructive Dilemma, Commutation, Association, Double Negation, Conditional Exchange, and De Morgan's). 20 pts each.

d. $\{\sim(A \bullet B), \sim\sim A\} \vdash \sim B$

e. $\{A \supset B\} \vdash \sim B \supset \sim A$

f. $\{A \supset (B \supset C)\} \vdash (A \bullet B) \supset C$