Problem Set 2

Due by **class time on Tuesday December 1st via email (kevinpatton@unomaha.edu)**. Lateness penalties (10% reduction per day) will apply to submissions after that time, unless you supply documentation of an illness or family emergency.

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

Proofs:

Do the following proofs using the following rules **ONLY:** Conjunction, Simplification, Modus Ponens, Disjunctive Syllogism, Addition, Modus Tollens, Hypothetical Syllogism, and Constructive Dilemma. 10 pts each.

a. $(B \vee F) \supset (A \supset G), (B \vee E) \supset (G \supset K), B \bullet \sim H$
Prove: $A \supset K$

b. $(\sim A \vee D) \supset (B \supset F), (B \vee C) \supset (A \supset E), A \vee B, \sim A$
Prove: $E \vee F$

c. $(\sim S \vee B) \supset (S \vee K), (K \vee \sim D) \supset (H \supset S), \sim S \bullet W$
Prove: $\sim H$

Proofs

Do the following proofs using the following rules **ONLY:** Conjunction, Simplification, Modus Ponens, Disjunctive Syllogism, Addition, Modus Tollens, Hypothetical Syllogism, Constructive Dilemma, Commutation, Association, Double Negation, Material Implication, and De Morgan's. 10 pts each.

d. $\sim(A \bullet B), \sim\sim A$
Prove: $\sim B$

e. $A \supset B$
Prove: $\sim B \supset \sim A$

f. $A \supset (B \supset C)$
Prove: $(A \bullet B) \supset C$

Proofs

Do the following proofs using all 18 rules. 20 pts each.

g. $N \supset O,\ N \supset P$
Prove: $N \supset (O \bullet P)$

h. $(E \vee F) \supset (C \bullet D),\ (D \vee G) \supset H,\ E \vee G$
Prove: H