Problem Set One

1. Find the rank of the sentence $((((\neg A) \vee B)\&C) \longrightarrow A)$, where $A, B, C$ are propositional variables.

2. Find a general formula for the total number of sentences of rank $\leq n$.

3. Show by induction on sentences that the number $V(C)$ of occurences of propositional variables in a formula $C$ is always one more than the number $B(C)$ of occurences of binary connectives.

4. Give a deduction showing that $\{A \longrightarrow C, B \longrightarrow C\} \vdash (A \vee B) \longrightarrow C$.

5. Demonstrate the Soundness of the Rule of $\longrightarrow$-Elimination.

Due Monday, September 18.