

Homework 2

Due September 17th

Problem 1 :

Let $P = \{X_1, X_2, X_3, X_4, X_5, X_6\}$.

1. Show that there are at most 30^{2^n} formulas of height n (this is a very rough estimate).
2. Show that there is a function $f : \{0, 1\}^P \rightarrow \{0, 1\}$ such that any formula whose interpretation is f has height at least 4.

Problem 2 :

1. Show that the set $\{\rightarrow, \neg\}$ is a minimal complete set of connectives.
2. Show that $\{\leftrightarrow, \neg\}$ is not a complete set of connectives.
3. Find a set of 8 distinct binary connectives which is not complete.