

Homework 1

Submission

Submit your individual solution at the beginning of the class on Monday, September 11.

Problems

1. Prove by induction that the number of vertices in a binary tree of height n is at most $2^{n+1} - 1$.
2. Problem 18 on page 14.
3. Problem 2 on page 26.
4. Show that for languages L_1, L_2, L_3 , if $w \in L_1(L_2 \cap L_3)$, then $w \in L_1L_2 \cap L_1L_3$.
Find L_1, L_2, L_3 such that there is a $w : w \in L_1L_2 \cap L_1L_3$ and $w \notin L_1(L_2 \cap L_3)$.
5. Problem 2 on page 47.

Good luck!