

CSC282 Fall 2005 Homework #5

1. Suppose a binary tree has leaves l_1, l_2, \dots, l_m at depth d_1, d_2, \dots, d_m , respectively. Prove that $\sum_{i=1}^m 2^{-d_i} \leq 1$ and determine when the equality is true.
2. CLRS 12-4
3. CLRS 13.1-6 (p. 277) Justify your answers!.
4. Kinda like CLRS 13.4-7:
 - A. Does inserting a node into a red-black tree and then deleting it always result in the original tree? Prove it does or give a counterexample.
 - B. Does deleting a leaf node from a red-black tree and then re-inserting the same key always result in the original tree? Prove it does or give a counterexample.
5. CLRS 13.3-5 (p. 287).
6. CLRS 13.3-6 (p. 287).