

## Review for Chapter 7 (Trees)-CS 113

Chapter 7 was about trees.

1. Know the vocabulary:

A tree is a graph with a unique simple path between any two vertices.

Also, know these terms: root, edge, leaf (terminal node), sibling, parent, child, interior node, ancestor, descendant, height, binary tree, level of a vertex.

2. Be able to traverse a tree in pre-order, in-order, and post-order.

3. Know what a binary search tree is and be able to put data into a binary search tree.

Also, be able to use a binary search tree to find data.

4. Know examples/applications of trees

1. Family trees (examples of rooted trees)

2. File systems

3. Huffman codes. Know what they are and be able to calculate one given some data. (This means some letters and their frequencies.)

5. Know the four equivalent conditions of Theorem 7.2.3. Also know what it means to say “the following are equivalent” in a theorem.

6. Know what a spanning tree is and be able to tell if a tree has one

7. Know what a binary tree is

Vocabulary: left/right child, full binary tree, binary search tree

Be able to build and/or explain how to find an object in a binary tree

8. Be able to traverse a tree in pre-order, post-order, in-order

If the tree is an expression tree, the terms prefix (Polish notation), postfix (Reverse Polish Noation) and infix, are used

9. Be able to tell if two trees are isomorphic.

Know the number of non-isomorphic trees for 3, 4, or 5 vertices

10. Game trees

Be able to use the minimax procedure to label vertices with 0 or 1 to indicate a win/loss.

Be able to use an n-level evaluation function.

Be able to use alpha- and beta- cutoff methods to prune a game tree.