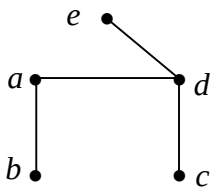
Name _____

Date _____

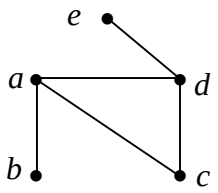
University of Baltimore
Math 321: Discrete Structures
Chapter 9.1-2(D): Trees

BECAUSE THIS IS A GRADED ASSIGNMENT, YOU MAY NEITHER GIVE NOR RECEIVE HELP.
Answer each question as indicated. **Think** first, then write. **Show all your work**, and remember to **check** your answers! Place your answers in the spaces provided.

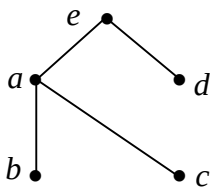
1. Indicate which of the graphs below are trees and, for those that are, indicate which vertices could be considered roots.



graph A

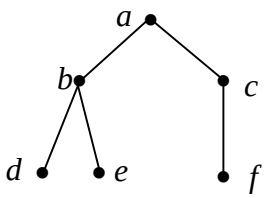


graph B



graph C

2. Using the tree pictured to the left, draw the subtrees rooted at vertices *b* and *c* respectively.



3. Our textbook is (as most are) divided into chapters, sections and subsections. Explain how a tree could be used as a visual illustration of the text. Include a description of what pieces would be represented by root, internal vertices, generations, subtrees, and leaves.

4. Build a binary search tree for the numbers 10, 21, 33, 15, 6, 12, and 9. Use numeric order.

5. Use the binary tree to the left below as an illustration of prefix codes.
a) Encode the word “seat”. b) Decode the string 1100111.