CSDS 455: Applied Graph Theory
Homework 19
Due Wednesday, October 27 at the start of class

Homework rules: You are welcome to work with others to solve these problems. If you do get help from someone else (or from some other resource), please indicate that on your homework.

Problem 1: A k-tree is a type of chordal graph given by the following recursive definition.
(1) K_{k+1} is a k-tree.
(2) Let G be a k-tree. Then $G + v$ is a k-tree if the neighbors of v in G form a k-clique.

Prove that every tree with at least 2 nodes is a 1-tree.

Problem 2: Prove that every cycle is a subgraph of a 2-tree.

Problem 3: Prove that being a subgraph of a k-tree is a hereditary property.