

Problem Set 5

Due: 11:30 a.m. on Tuesday, April 2

Instructions: All students except for the presenter are to complete all of the exercises below. Be sure to adhere to the expectations outlined on the sheet *Guidelines for Problem Sets*. Submit your solutions in-class or to Dr. Cooper's mailbox in the Department of Mathematics.

Exercises:

1. Prove that any leaf of a simplicial complex Δ has a free vertex.
2. Prove that a graph is a tree if and only if there is exactly one path between every pair of its vertices.
3. Prove that any connected graph with n vertices and $(n - 1)$ edges is a tree.