

# Homework 16

Due 11/04/16

November 1, 2016

A *tree* is a connected, acyclic graph (i.e., no cycles). Describe an algorithm to determine whether a given undirected graph with  $n$  vertices and  $m$  edges is a tree in  $O(n + m)$  time.

*Hint:* be careful when detecting cycles—it's easy to “detect” cycles that aren't actually cycles. You may wish to simulate your algorithm on a two- or three-vertex tree to make sure it is correct.