

Last name _____

First name _____

LARSON—MATH 356—CLASSROOM WORKSHEET 14
Trees & Euler Circuits

Review

- What is a *path* in a graph? What is a *connected graph*?
- What is a *subgraph* of a graph?
- What is an *induced subgraph* of a graph?
- What is a *Hamiltonian circuit* in a graph?
- How can we *find* a Hamiltonian circuit in a graph (if it has one)?

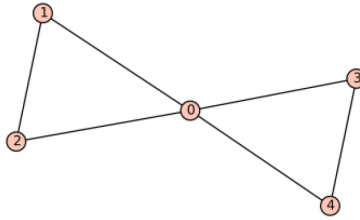
1. What is a *tree*?

2. What is a *leaf* in a tree?

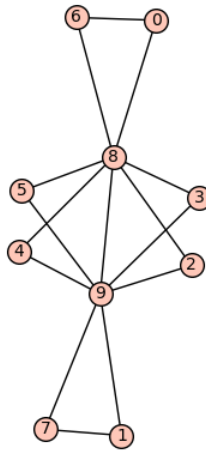
3. **(Claim:)** A non-trivial tree (a tree with at least two vertices) has a leaf.

4. **(Claim:)** There is a unique path between any pair of vertices in a tree.

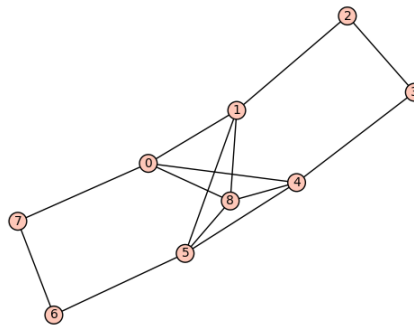
5. What is an *Eulerian circuit* in a graph?



6. Can you find an Eulerian circuit in this graph?



7. Can you find an Eulerian circuit in this graph?



8. Can you find an Eulerian circuit in this graph?

9. **(Claim:)** A connected graph has an Eulerian circuit if and only if every vertex has even degree.