Last name _____

First name _____

LARSON—MATH 356—CLASSROOM WORKSHEET 07
Dijkstra's Algorithm!

Reminders

1. Remember to email your Notes/Classroom Worksheet prior to the next class.
2. Homework $h02$ is due today.
3. Homework $h03$ is due next Tuesday: #1.5.1, 1.5.3, 1.6.1.
4. Homework $h04$ will be a Test Review.
5. Test 1 is Tuesday, Mar. 23.
6. Read ahead in our textbook. We're into Chp. 2 and trees!

Concepts & Notation

- Sec. 1.6: walk, trail, path, connected, disconnected, components ω, distance $d(v, w)$.
- Sec. 1.7: closed walk, cycle, girth, length.
- Sec. 1.8: weighted graph, shortest path problem, Dijkstra's algorithm.
- Sec. 2.1: acyclic, tree
- Sec. 2.2: cut edge, spanning tree.

Review

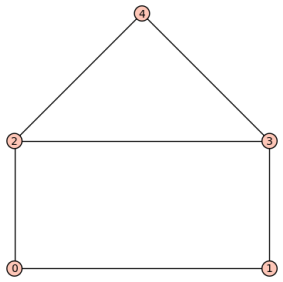
1. What is the *girth* of a graph?

2. (Sec. 1.6) What is the *distance* between vertices v and w in a graph?

3. (Sec. 1.7) **Bipartite Graph Characterization Theorem**: A graph is bipartite if and only if it contains no odd cycle.

4. Can we turn this proof into a test for whether a graph is bipartite?

Notes



1. (Sec. 1.8) What is a *weighted graph*?

2. What is the *shortest path problem*?

3. What is *Dijkstra's algorithm*?

4. What is a *tree*?

5. **Claim**: Any two vertices in a tree are connected by a unique path.