LARSON—MATH 356—CLASSROOM WORKSHEET 09
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.
• Sec. 2.3: cut vertex, Prufer code, coding and decoding algorithm, Cayley’s Theorem.
• Sec. 2.5: connector problem, Kruskal’s algorithm.

Organizational Notes

• Keep reading ahead in our text. We’re into Sec. 2.1 now.
• h09, #2.1.7, p.26, is officially due on Tuesday.
• Solutions for h08 posted.
• Everything I’ve received through h08 is graded and/or posted.
• Daily Worksheet: send s10 worksheet after Lab.

Review

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

2. What is the shortest path problem?

3. What is Dijkstra’s algorithm?
Notes

4. What is a tree?

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

6. Claim: For any tree, $\epsilon = \nu - 1$.

7. What is a cut edge?

8. Claim: A connected graph is a tree if and only if every edge is a cut edge.