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First name _____

LARSON—MATH 356—CLASSROOM WORKSHEET 13
Euler tours

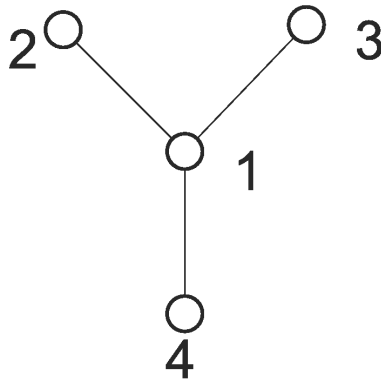
Reminders

1. Remember to email your Notes/Classroom Worksheet prior to the next class.
2. Read ahead in our textbook. Up next we'll move into Chp. 4 and Euler and Hamilton circuits.

Concepts & Notation

- Sec. 2.3: cut vertex, Prufer code, coding and decoding algorithm, Cayley's Theorem.
- Sec. 4.1: Euler tours, Hamiltonian cycle.

Review



1. What is a *Prufer code* for a tree?
2. How can we decode a Prufer code?

Notes

1. How many spanning trees are there of the complete graph K_n (How many different Prufer codes are there for a tree with ν vertices; and equivalently, how many labeled trees are there with ν vertices)?
2. What is an *Euler tour* in a graph?
3. What is a necessary condition for a connected graph to have an Euler circuit?
4. Is this also a sufficient condition?
5. How can we prove it?
6. Can we use this condition to develop a test for whether a (connected) graph is Eulerian?
7. What is an *Euler trail*?
8. When does a graph have an Euler trail?
9. What is a Hamilton cycle?
10. What is an obvious algorithm for testing if a graph has a Hamilton cycle?