

Last name _____

First name _____

LARSON—MATH 656—CLASSROOM WORKSHEET 27
Network Flows.

Organizational Notes

1. Don't forget to send your Notes / Classroom worksheet after each class (make the email subject useful: like "Math 656 c27 notes").
2. The VCU Discrete Math Seminar is every Wednesday.
3. Homework #8 is the Test 2 Review. That's due at 11:59 pm Tuesday night (May 4).
4. Test 2 is this Wednesday (May 5).

Review

1. Almost all graphs have diameter = 2.
2. (**Lemma**) If $[S, T]$ is a source/sink cut, then the net flow of a flow f out of S equals the net flow into T . Furthermore, the net flow out of *any* source/sink cut is constant (and also equals the net flow out of s , and also equals $val(f)$).
3. (**Weak Duality**) If f is a feasible flow and $[S, T]$ is a source/sink cut, then $val(f) \leq cap(S, T)$.
4. What is the *minimum cut* problem?

Notes

1. What is the *Ford-Fulkerson labeling algorithm*?
2. (**Max-flow Min-cut Theorem—AKA Ford-Fulkerson Theorem**) In every network, the maximum value of a feasible flow equals the minimum capacity of a source/sink cut.
3. Use the Max-Flow Min-Cut theorem to prove the König Theorem.