Final exam: Thurs 12/14, 8:00-11:00am, 132 Berier Hall

TWO reference sheets (2x front and back) allowed

Cumulative: everything from the course is fair game

See email for full policies

Today: ~60 minutes of prepared problems

then anything you want to talk about

Examples:

1) Let D be a digraph and let $x, y \in V(D)$. Use network flows to prove that $k'(x,y) = \lambda'(x,y)$.

2) (2.1.32) Let G : conn. graph, $e \in E(G)$. Prove that

a) e is a cut-edge $\iff$ e belongs to every spanning tree

b) e is a loop $\iff$ e belongs to no spanning tree

3) (3.1.29) a) Prove that every bipartite graph has a matching of size $\geq \dfrac{e(G)}{\Delta(G)}$

b) Let H be a subgraph of $K_{n,n}$ w/ $> (k-1)n$ edges. Prove that H has a matching of size $\geq k$.

4) (4.1.10): Determine the smallest 3-regular simple graph G with $\underbrace{K(G) = 1}_{\text{(vertex) connectivity}}$

5) Let G be a P_4-free simple graph (no induced subgraph isom. to P_4). Prove that the greedy coloring algorithm uses $\chi(G)$ colors for any vertex order.