Last name _____

First name _____

LARSON—MATH 756—CLASSROOM WORKSHEET 19
Knuth—Sandwich Theorem

Review

1. Show: STAB$(G) \subseteq TH(G)$, for any graph G.
2. What is Knuth's first definition of ϑ?
3. Why is $\alpha(G) = \max\{\hat{x} \cdot \hat{1} | \hat{x} \in STAB(G)\}$?
4. What is Knuth's proof that $\alpha \leq \vartheta$?

New

1. Why is $TH(G) \subseteq QSTAB(G)$, for any graph G?

2. What is κ? (Knuth defines $\kappa(G) = \max\{\hat{x} \cdot \hat{1} | \hat{x} \in QSTAB(G)\}$).

3. Why is $\vartheta \leq \kappa$ for any graph?

4. Why is $\kappa \leq \bar{\omega}$ for any graph (establishing $\alpha \leq \vartheta \leq \kappa \leq \bar{\omega}$)?

Complete and Empty Graphs

5. What can we say about $\alpha, \vartheta, \kappa$ for complete graphs K_n?

6. What can we say about $\alpha, \vartheta, \kappa$ for empty graphs $\bar{K}_n$?

Monotonicity

7. What is Knuth's definition of $G \subseteq G'$?

8. Why does $G \subseteq G'$ imply $STAB(G') \subseteq STAB(G)$?

9. Why does $G \subseteq G'$ imply $TH(G') \subseteq TH(G)$?

10. Why does $G \subseteq G'$ imply $QSTAB(G') \subseteq QSTAB(G)$?