Last name _____

First name _____

LARSON—MATH 756—CLASSROOM WORKSHEET 20
Knuth—Sandwich Theorem

Review

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 $\alpha \leq \vartheta \leq \kappa \leq \bar{\omega}$)?
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 $\bar{K_n}$?

New

Monotonicity

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

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

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

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

To show: $\vartheta \leq \vartheta_1$

5. What is Knuth's definition of ϑ_1?

6. Can we find ϑ_1 for the path P_3?

7. Can we find ϑ_1 for the paw graph?

8. Why does $\vartheta \leq \vartheta_1$ for any graph?