COSC 311: Algorithms
Mini 4
Due Friday, October 4 in class

1. Applying the Master Theorem.

(a) Let $T(n) = 4T(n/4) + \sqrt{n}$. Use the Master Theorem to determine the Θ class of $T(n)$.

(b) Let $T(n) = 9T(n/3) + 2n^2$. Use the Master Theorem to determine the Θ class of $T(n)$.

2. Interpreting the Master Theorem. Why do we compare $n^{\log_b a}$ and $f(n)$ when deciding which case of the Master Theorem applies? What does this comparison tell us about where most of the work happens in the algorithm we're studying?