Left Neighbor: _____   Right Neighbor: _____

Name: _____   Student ID: _____

Section TA: _____

This is a closed book quiz

For each of the proofs on the other side, you get one point for the basis case, one point for identifying the inductive hypothesis, and the rest of the points for the inductive step. You can use k or n as your variable for the inductive step.

1. (**4 points**) Prove by induction for every natural number n, $\sum_1^n 2^i = 2^{n+1} - 2$.

2. (**6 points**) Prove by induction that for all $n \geq 2$, $6^k > 5^k + 9$.