Quiz 6: Cinco de Mayo, 2016
Left Neighbor: $\qquad$
Name: $\qquad$
Section TA:
This is a closed book quiz

1. (2 points) Prove the below by induction for all natural numbers, $n \geq 7$. You get 1 point for stating the Inductive Hypothesis, 1 point for the Basis Step, and 3 points for the Inductive step.

$$
3^{n}<n!
$$

2. (2 points) Prove the below by induction for all positive integers, $n$. You get 1 point for stating the Inductive Hypothesis, 1 point for the Basis Step, and 3 points for the Inductive step.

$$
\sum_{i=1}^{n} i 2^{i}=(n-1) 2^{n+1}+2
$$

