CSE 311: Foundations of Computing I
Assignment \#5
April 30, 2014
due: Friday, May 9, 1:30 p.m., before lecture begins
Bundles: The problems in each homework assignment will be divided into 2 groups (to facilitate distribution to grading TAs). You will turn in 2 corresponding bundles. Write your name in the upper left corner of each bundle's top page, with your last name printed clearly in CAPITAL LETTERS. Each bundle should be stapled separately. We don't supply the stapler.
This week's turnin bundles: (A) problems 1-2, (B) problems 3-5.
Textbook numbering labeled "6th edition" refers to the textbook's Sixth Edition. Numbering that is unlabeled refers to the Seventh Edition.

1. Section 5.1 [6th edition: Section 4.1], exercise 14. Use mathematical induction.
2. Section 5.1, exercise 60 [6th edition: Section 4.1, exercise 56].
3. Section 5.1 [6th edition: Section 4.1], exercise 34. Use mathematical induction.
4. Use mathematical induction to prove that $n!<n^{n}$ whenever $n$ is an integer greater than 1.
5. Define the Fibonacci numbers as follows: $f(0)=0, f(1)=1$, and $f(n)=f(n-2)+$ $f(n-1)$ for all integers $n \geq 2$. Prove by induction that, for all integers $n \geq 2$, the number of iterations used by Euclid's algorithm to compute $\operatorname{gcd}(f(n+1), f(n))$ is $n-1$.
