
2. Use mathematical induction to prove that $n! < n^n$ whenever $n$ is an integer greater than 1.


4. Section 5.1, exercise 60 [6th edition: Section 4.1, exercise 56].

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 $\gcd(f(n+1), f(n))$ is $n - 1$. 