

CSE780 Homework 4
Due Monday, October 27

1. Page 353:17-1 (old version), 402: 16-1(new version)
2. The k th Fibonacci number is defined by the recurrence
 $F_0 = 0$
 $F_1 = 1$
 $F_k = F_{k-1} + F_{k-2}$ for $k \geq 2$.
Prove that $F_{k+2} = \sum_{i=0}^k F_i + 1$.
Prove that the i th Fibonacci number satisfies the equality $F_i = (\phi^i - \phi'^i)/\sqrt{5}$
where $\phi = \frac{1+\sqrt{5}}{2}$ and $\phi' = \frac{1-\sqrt{5}}{2}$.

(The grader will only grade a subset of these problems.)