XC7:

For Newton Iteration on $\sqrt{A}$, the function used is: $f(x) = x^2 - A$, the error equation is: $e_{i+1} = \frac{1}{2x_i}{e_i}^2$. Prove that: if $x_0 > 0$, then $x_i \to \sqrt{A}$.

XC8:

For Secant method, prove the error equation below:

$e_{i+1} = \frac{f''(\theta_i)}{2f[x_{i-1},x_i]} \cdot e_i \cdot e_{i-1}$, where $\theta_i \in span(x_{i-1}, x_i, \alpha)$, $\alpha$ is the root of $f(x)$.

Note that $f[x_{i-1}, x_i] = \frac{f(x_{i-1})-f(x_i)}{x_{i-1}-x_i}$.