Numerical Algorithms – Complexity W4241
PP7

- Derive the error equation for:

$$x_{i+1} = x_i(2 - Ax_i)$$

C12

- Program and test Newton's method. Input x_0, δ, f, f'. Terminate when $|x_{i+1} - x_i| = |\frac{f(x_i)}{f'(x_i)}| \leq \delta$.

C13

- Pick a function f such that $\frac{f''}{2f'} \approx 1$ near the root α. Choose $\alpha = 0$. Do the number of correct digits double at each step?